THE BUILDER

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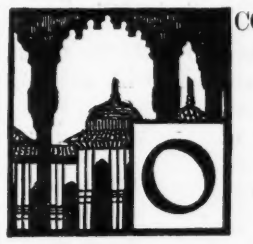
"The Builder" in the Future.



OCCASIONS now and then arise in the history of a paper when it may legitimately put aside for a moment the usual questions with which it deals in order to take the reader into its confidence in regard to itself.

The appointment of a new Editor to a journal such as the *Builder*, with a long record, we believe, of useful work in the past, must be a matter of interest if only as suggesting a record yet to be unfolded; and so we may be forgiven if we devote our leading article this week to ourselves.

The termination of the long and able services of the late Editor (Mr. H. H. Statham) will doubtless be regretted by many on personal and other grounds; but the proprietors feel assured that the appointment of Mr. H. V. Lanchester to the position thus vacated will be welcomed, not only throughout the architectural profession, but by all who take an interest in the *Builder*.

Taking a brief retrospect of our history, we would remind our readers that the first Editor was Mr. J. A. Hansom, the inventor of the hansom cab. After a few months he was succeeded by Mr. Bartholomew, who shortly after gave place to Mr. George Godwin. He conducted the paper with great ability for nearly forty years, until in 1883 the position of Editor was undertaken by Mr. H. H. Statham.

The original object of the projectors was defined in the first number, issued on December 31, 1842, as follows:—

"In designating our paper, we used the word 'Builder' in its most extended sense—instancing a house, or other edifice, we regard it from the procurement and preparation of the materials, to the fixing upon its site, and to its full completion for the residence, use, and enjoyment of man, and which includes the making of the design or plan, 'breaking' ground, as it is termed; the erection or building up; decorating, fitting, and furnishing; the supply of water and drainage; and even the laying out of the garden, pleasure-grounds, and park. This is the whole art of building, or, in other words, of providing and perfecting human habitations. To all, therefore, who are engaged in the art so defined, we address ourselves without distinction and without preference; the interests of all will, to the best of our power, be consulted, promoted, and advocated."

The extensive scope intended to be covered by the title of the *Builder* was thus foreshadowed from its very commencement. The sub-heading, "A Journal for the Architect, Engineer, Operative, and Artist," was added in 1845, and the following quotations have appeared on the title-page since that date, thus further explaining the wide sphere of its interests:—

"Every man's proper mansion-house and home, being the theater of his hospitality, the seate of selfe-fruition, the comfortablest part of his own life, the noblest of his sonne's inheritance, a kind of private princedome, nay, to the possessors thereof, an epitome of the whole world, may well deserve, by these attributes, according to the degree of the master, to be decently and delightfully adorned."

"Architecture can want no commendation, where there are noble men, or noble mindes."—Sir Henry Wotton.

"Our English word To Build is the Anglo-Saxon Býlðan, to confirm, to establish, to make firm and sure and fast, to consolidate, to strengthen; and is applicable to all other things as well as to dwelling-places."—Diversions of Purley.

Looking back upon the past and considering the cordial support we have so long received, we cannot but feel it to be due to our readers that we should recognise the constantly widening extent of the field covered by Architecture and Building, and endeavour to include in our future pages a more comprehensive survey of all the interests connected with this great art.

Holding firmly to the general principles that have always guided us, we can only continue to lead by showing a capacity to embrace every subject now dominated by Architecture and the allied professions. The scope of our paper is a wide one—wider, indeed, in all its ramifications than any one of our readers is likely to require. Many may have felt the difficulty of selecting what specially interests them. With an enlarged programme this difficulty will be accentuated, and it has therefore become clear to us that some form of subdivision in the mass of information supplied week by week will be needful.

In view of this, we propose, in the near future, so to rearrange the varied contents of the paper as to enable each reader to grasp their substance more quickly, and to decide what portions will best repay his perusal. We also propose to include illustrations in the text to a much greater extent than we have hitherto done, and, while maintaining the high character of the inset plates, to treat them often as a definite series illustrating the various aspects of architecture and construction.

Broadly speaking, we have, up to the present, dealt mainly with Archæology, Architecture and Building, Professional Practice, and Municipal Work, in addition to the weekly news columns.

Still continuing to treat these subjects in a comprehensive manner, we shall

in the future add valuable articles and illustrations on such important topics as Architectural and Technical Education, the Building Engineer, Town Planning, and other kindred matters.

As regards the first of these, we feel that the subject of Education has been almost entirely neglected in the building Press, and its importance to the future of Architecture demands an immediate effort to supply this deficiency by means of a series of articles on the Education of the Architect.

In the matter of Construction and Engineering the relationship of the architect to the numerous branches of science that the erection of a building now calls to its aid will receive especial study; while the Town Planning Act has imposed such important duties on our local authorities that it is imperative for all interested in Architecture and the allied arts to be well informed on this aspect of communal life.

The exact form in which the additional material will be presented has not, as yet, been finally determined, but our readers may rest assured that the articles will be contributed by the highest authorities in each branch, and that the illustrations will have a clear and definite value.

While some of the proposed changes will take shape during the next few weeks, it would be clearly undesirable to make any material alteration in the general arrangement of the paper till the commencement of a new volume in July next, when we shall be prepared to make a more definite and comprehensive statement on the subject.

This brief sketch of our future policy will, we trust, enable our readers to form some impression as to what they may expect from us, and we can only add that it is our desire to welcome any suggestions and criticisms offered with a view to enhancing the value of the *Builder*.

LICENTIATES, ROYAL INSTITUTE OF BRITISH ARCHITECTS.

WE print in another column an intimation that the Royal Institute of British Architects is now in a position to gather within its walls all the practising architects "of good standing" throughout the country. We offer our heartiest good wishes for the success of this step, feeling assured that it will be one most beneficial both to those who are at present members of the Institute and those who will now become associated with it as Licentiates.

Till within the last few years the difficulties standing in the way of providing a systematic education in architecture (especially in districts remote from populous centres) precluded many of those entering this profession from qualifying themselves as Associates of the Royal Institute of British Architects, and those who have been more fortunately placed in this respect should be prepared to recognise that there will be in the new class of Licentiates many whose claims to professional repute are none the less valid because founded on a different basis.

Let it not for a moment be imagined that the title of Licentiate carries with it any badge of inferiority, but merely regard it as a distinctive mark of those who, having come by a different road, now join the body of the Royal Institute of British Architects to co-operate with their brethren of that body in securing for the profession of architecture a position which, without such a union, would assuredly be unattainable.

The advantages to the Institute of an accession of members who will, as time goes on, take an increasing interest in its proceedings and in the work it is doing for the advancement of architecture hardly need recapitulating. The advantages to the Licentiate becoming a member of this body, and at once securing its support in the many ways in which it can legitimately strengthen the status of the individual architect, together with the facilities it will afford him in qualifying for promotion to the class of Fellows, are equally obvious, and we think it will be admitted on all sides that the more general the acceptance of the offer now open, the stronger will be the position of both the Royal Institute of British Architects and its body of Licentiates when the question arises of seeking legislative powers to protect the qualified architect from the unfair competition of the untrained and incompetent pretender.

We desire to draw particular attention to the short time allowed for examining the claims and electing the large number of practising architects who will be found eligible for admission to this Licentiate class. Two years might well have been allowed instead of one, as all the work devolves on the Council of the Royal Institute of British Architects, and the number of candidates will probably run into thousands. We can foresee a busy time at the Institute this summer and a probable shortening of its annual recess. Even in this case the most strenuous efforts will have to be made to complete the work of admission by the stipulated date, and we would strongly urge every intending Licentiate to secure his nomination at the earliest possible date.

ARCHITECTS AND THE PUBLIC.

MR. W. SHAW SPARROW, in *The New Age* of March 24, has a tilt at architects in their relationship to the community.

The knowledge Mr. Sparrow has of the problems before the architect at the present time points his lance and renders his thrusts the shrewder. Witness his remarks as follows:—

"Unhappily, too, architects are unable to protect themselves. Union is the last necessity that artists think about. They look at things from so many points of view that they talk and wrangle far too much, till their energy for action becomes as futile as evaporated steam. Then they say, 'We're artists, individualists.' A moment later, having forgotten that remark, they add, 'We haven't a chance; there are so many forces against us.' Just so. The unorganised go down before the charging big battalions. As authors fear publishers, yet never set on foot a publishing firm of their own, so architects, despite their poor hopes for the future, neither become their own contractors nor try to encounter with practical courage the tactics of competing shop companies bolstered up by advertisements. Odd and pathetic! Why is it that artists cannot produce a strategist, a great organiser, their own Lord Kitchener?"

If, however, Mr. Sparrow wounds, he also offers the remedy—would that it were as effective as he seems to imagine:—

"We have in Great Britain at the present time artist-craftsmen as good as any to be found among their forerunners. Yet their work is known to very few home-makers. They have not the reputation of third-rate cricketers and pugilists. And it is their own fault. Each one, isolated, is in competition with many large factories, which turn out for advertised sale many tons of work in his own line, but of very inferior merit. Little by little he does attract a client, but his outlook is cramped, narrow, and vague. To attack single-handed a great competing trade is plucky, but futile. *Why* should he fight alone? He ought to belong to a guild of artist-craftsmen, having in all big towns its own workshops and public showrooms. The best in the home arts cannot possibly thrive if it remains unpublic, little known; and since architects and craftsmen are scattered and distributed, they should organise at once and be men. I receive letters now and again from all parts of the country asking me questions about house furnishing. 'Who makes the best table glass?' 'Where are the finest carpets to be bought?' 'Please send me the name of a first-rate architect living not far from this neighbourhood.' 'I want the address of Mr. Gimson, or of another great maker of furniture.' These questions, and many others, all poke fun at the far-scattered disorganisation of the household arts, as distinguished from factory trades for the home."

What is this but a suggestion that artists should put themselves under commercial control, the very thing most repugnant to them? Moreover, if they did, would the desired effect result? Their business manager would almost inevitably become an "entrepreneur," and the concern, if successful, develop into merely another of the popular pseudo-art factories it started out to slay.

Still seeking other fields for his energies, Mr. Sparrow next turns his attention to architects' charges:—

"Why is it that so many persons employ builders rather than architects? And why do ratepayers, even in these days of jerry-building, buy houses without good advice from an architect? I have put these questions to many layfolk, and the answers have been always the same. I am told that builders are better known, that they are practical, and that really an architect's position and charges are very hard to understand. More often than not I find a layman has consulted Whitaker, and finds that an architect's fees include *five per cent. on the total cost of production* if that cost exceeds 1,000*l*. And I notice that men of business object to that uncommon usage. An architect, they contend, is a financial adviser, and as such he should not earn his bread by a percentage on the cost of production. He should be in a position to suggest alterations to accepted plans without provoking suspicion in a client's mind. If the act of spending money is to increase a man's income, why should a client trust his adviser? The progress of building work, as a rule, suggests a good many modifications, involving extra expenses; and your client is likely to say to you, 'Well, yes; I suppose we ought to do these things; but, then, they try to feather your nest; you get 5 per cent. of the extra cost.'"

Now, of course, the sacred 5 per cent. is logically indefensible; why, then, has its vogue lasted so long? We may take it as a tribute to the high opinion the educated man has of the architect's character. The man of the world knows well enough that no one would enter this profession merely for its pecuniary rewards. Assuredly if anyone did, "he is the more deceived." To the architect carrying on the kind of domestic practice which Mr. Sparrow has in mind 5 per cent. will represent about a minimum wage on which he may with care live in a civilised manner; probably he will work longer hours, and earn just about as much per hour as the man who lays the bricks, or he who hangs the doors. "But" (says Mr. Sparrow) "the principle!" Wait, we are

coming to that in due course. This is the nearest approach to a principle we can find in defence of 5 per cent.

An architect rarely takes up his profession with the idea that it is likely to prove particularly remunerative, but for quite other reasons. Apart from the responsibility and a certain amount of necessary drudgery, we should find quite a number prepared to work for the pleasure of working. As a rule, he is not anxious for any avoidable discussion of financial matters, and welcomes any method, however dubious, that will minimise this. Offer any architect a fixed fee giving a reasonable margin to cover contingenicies, and see what he will say. The man who makes the question of commission on extras his excuse is a man who has no desire for architecture, but does not like to admit the fact.

We shall hope to meet with Mr. W. S. Sparrow again. Though it is impossible to agree with all he says, we cannot but feel roused and inspirited by the interest he takes in architecture and its methods.

NOTES.

Acton Schools Competition.

Our readers will find in this issue a report of the proceedings of the Acton Education Committee in arranging a competition for a new school. It is in some ways instructive as an example of the too frequent attitude of local bodies towards the architectural profession. We are pleased to hear that the Royal Institute of British Architects has decided that its members ought not to take part in this competition, in which no guarantee is given that the architect placed first would be employed and the remuneration is fixed at 3½ per cent. Did the Committee really imagine that the President of the Royal Institute of British Architects, or any nominee of his, would consent to act as assessor when they framed these proposals?

Richmond Hill View.

The action of the Office of Works, as reported in the daily Press, in regard to the protection of the view of Richmond Hill, will be commended by most people. The erection of a block of flats was contemplated on the site of Ancaster House, on the summit of the Hill and overlooking the Park, and, though plans for the erection of the building had not been passed by the Richmond Council, it was believed that the work would be carried out at some time or other. This, at all events, appears to have been the belief of the Office of Works, as orders have been given for the planting of a screen of trees across the entire Park frontage of Ancaster House. Altogether about eighty young trees are to be planted, and, as these will in a year or two effectually cut off the view, the erection of the flats is now considered much less probable than before the Office of Works took this action.

The London County Council at the Japan-British Exhibition.

Our readers will be interested to learn that the London County Council are exhibiting at the approaching Japan-British Exhibition. This exhibit will include a model of Battersea Park, a tiny block of cottages like those on one of the Council's Housing Estates, a model showing tenement fittings, and a miniature representation of Bruce House, showing the cubicles. In contrast to these will be an old type common lodging-house with all the sordidness of its surroundings. Holborn and Kingsway, with their immediate modern interest, are to be displayed in model; and the sanitarian will find a similar representation of the Barking sewage scheme.

Metropolitan Traffic Facilities.

In the Stanford's map of Metropolitan Railways and Tramways there is little evidence of further activity. London is now fairly provided with means of transit, although much remains to be done in order to cope with the rapid development of outer regions. At the present time no new railways are in contemplation; new tramway lines sanctioned comprise extensions in suburban and rural districts, and new tramways proposed chiefly represent more or less important connecting-links, the most noteworthy being a line between the Marble Arch and Cricklewood. Several excellent projects brought forward during recent years have died a natural death, much to the regret of inhabitants in different parts of the metropolis. When a Traffic Board is constituted on the lines recommended by the Royal Commission we may expect to witness a renewal of activity on the part of those concerned in metropolitan railway undertakings. The question, "When will that be?" is one to which we do not hazard a reply.

Fire Tests of Roof Coverings.

Particulars of a series of tests conducted in January on various roof-covering materials are given in a report issued this week by the British Fire Prevention Committee. The roofs were of three classes—flat, sloping, and curb; the first covered with boards and lead, zinc, "Malthoid," and "Pabco"; the second covered with open and close slating on battens, boards and close slating galvanised corrugated sheets, and "Pabco"; the third covered with boards and open slating, close slating, galvanised corrugated sheets, and "Pabco." The composition of "Malthoid" and "Pabco" is not stated. Both of these materials came out very well in all the tests. In the flat-roof tests flame came through lead in ten minutes, through zinc in twelve minutes, and through the two other materials in thirty minutes. In the sloping-roof tests flame appeared through the galvanised sheets in thirteen and a half minutes, through slating in from twenty-four and a half to thirty-four minutes, and through "Pabco" in from twenty-five and a half to thirty-nine minutes. In the curb-roof tests practically no damage was done to any of the coverings at the expiration of sixty minutes. The report contains voluminous details with numerous illustrations, and deserves careful study.

Waterproofing Concrete.

At the Chicago meeting of the National Association of Cement-Users Mr. C. M. Chapman read a paper giving the results of an investigation into the merits of nineteen waterproofing compounds. During the discussion of this contribution the author stated that the concrete block structure to which the selected compound was intended to be applied turned out to be perfectly waterproof so far as the blocks were concerned, and that after repointing the joints no waterproofing material was necessary. Most of those who spoke at the same meeting appeared to be at one with the author in the opinion that waterproofing is chiefly of value as a means of rectifying indifferent work, and that well-made concrete is sufficiently impermeable in itself. That view is clearly borne out by various careful tests made in this country and elsewhere. Providing all voids in the sand are filled by cement and all voids in the aggregate by mortar, in each case with a reasonable excess of cement, there is no reason for fearing the penetration of water through concrete. Unfortunately, the proportions adopted and the care taken in mixing and placing are not always adequate. Hence the need for waterproofing compounds and surface rendering.

The Rokeby Velazquez.

Mr. James Greig, in a letter to the *Morning Post*, announces the discovery of a signature on the picture known as the Rokeby Velazquez, the acquisition of which, for the nation, was the cause of much discussion at the time. The signature in question consists of two monograms. Mr. Greig reads them as J. B.—D. M., and attributes the painting to Juan Bautista Del Mazo, son-in-law of Velazquez and his successor as Court painter to Philip IV. Mr. Greig continues:—"Mazo had an extraordinary talent for reproducing the character and quality of the works of other painters, especially Velazquez. So closely do his best pictures resemble those of the father-in-law that there has always been some uncertainty in regard to their attribution. Beruete says that Velazquez rarely put his name to a picture; but that when he did so he always painted it on a paper placed in the hand of the subject of the portrait. The full-length portrait of Philip IV. in the National Gallery is an example. The portrait of 'Admiral Adrian Pulido Pareja' in the same gallery, which was bought as a Velazquez for the nation at about 18,000*l*., is also signed, but the signature is now generally believed to be a forgery and the picture given to Mazo." Sir W. B. Richmond and others have always maintained that this painting is not by Velazquez on the grounds of the entire dissimilarity of its technique to that of any of the known works of the greatest of Spanish painters.

Elementary Schools, Warley.—A block of elementary schools has been built in Abbey-road, Warley. The schools contain three departments, accommodating 330 boys, 270 girls, and 210 infants, a total of 810. In addition to this, future extension of the infants' department has been provided for, so that when required the accommodation of this department can be raised to 450, making a total number of school spaces of 1,050. The site cost 1,070*l*., and the building loan was 10,720*l*., while an extra expense of 650*l*. was entailed in furnishing, making a total of 12,440*l*. Mr. William Jackson, of Langley, is the builder, and the plans are those of Mr. William F. Edwards, of Birmingham. Competitive designs were obtained from a number of local architects, and then submitted to Mr. Blackwell, of Kettering, to adjudicate upon, Mr. Edwards's plans being selected.

TTH ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE usual fortnightly meeting of the Royal Institute of British Architects was held at No. 9, Conduit-street, W., on Monday, Mr. A. W. S. Cross in the chair.

The Chairman said that intimation had been received of the sanction by the Privy Council of the revised by-laws with one exception. The by-laws would come into immediate operation, and would be issued in the next number of the *Journal*.

Mr. Hare announced the decease of Mr. W. Mansfield Mitchell, of the Royal Hibernian Academy, and Past-President of the Royal Institute of Architects of Ireland, who resigned his Fellowship of the Royal Institute of British Architects a few months ago owing to ill-health; of Mr. Jesse Horsfold, of Manchester, elected in 1893; and Mr. C. A. Monday, elected 1878. A vote of condolence was passed to the relatives of the late Mr. Mitchell.

Mr. George Hubbard then read a paper on the

Architecture on the Eastern Side of the Adriatic,

from which we take the following:—

"There is no part of Europe less understood and less visited than the Balkan States. Its complicated history deters many from attempting to grasp its checkered sequence of events, and the inhospitable nature of some of its provinces preserves them from becoming popular resorts. Few lands, however, are more interesting, and the struggles that have taken place in this great peninsula, lying between Europe on the west and Asia on the east, have preserved Europe from being overrun by the Asiatic. A very short reference must be made to the leading historical events.

Various Greek colonies settled on some of the Dalmatian islands. Perhaps the earliest to arrive came from Syracuse, and were settled by Dionysius the elder on the island of Lissa (Issa) B.C. 387. Two years later the Greek colonists passed on to the mainland at Stobrez and Traü. No purely Greek architectural remains have been discovered; but Greek inscriptions, Greek vases and coins have been found. The Greek colonies continued until the third century B.C., when they were compelled to appeal for the assistance of Rome against the Illyrians. The warfare between the Romans and Illyrians was continued till the beginning of the Christian era, when the Illyrians were conquered and Dalmatia became a province of Rome. In 284 the Roman Empire fell to Diocletian, whose palace at Spalato forms the great central point of interest of Dalmatia.

The succession of Roman emperors came to an end in the West in 476 as the Teutonic inroads obtained the mastery; but they continued to rule at Constantinople, and the Roman sphere of influence was more nominal than actual on the west of the Adriatic. The Roman Empire was again united under that great building Emperor Justinian, who reigned from 527-565. Under him rose the Byzantine architecture, and one of the finest examples of this style may be seen at Parenzo.

Many of the coast towns are beautified by examples of Venetian architecture. The Venetians obtained their footing on the eastern side of the Adriatic after they had successfully contested with the Narentines for the supremacy of that sea.

In the middle of the XIIIth century a new power was growing, the Ottoman Turks, so called after their leader, Othman, and their power has lasted till our own time. They hemmed in the Eastern Empire, and all was lost except Constantinople and a small territory around it. It is in the interior of the country that the Turkish work is to be seen; the coast towns have been strongly held by the Latin races before the advent of the Turks. Short, incomplete, and slight as is this historical sketch, it may perhaps indicate some of the influences which have inspired most of the important buildings on the eastern side of the Adriatic. My chief authority is Mr. T. G. Jackson, from whose excellent work, "Dalmatia, the Quarnero, and Istria," I have quoted my facts.

After leaving Trieste the traveller soon realises that he has left the West and that he is treading on the threshold of the East. The Slav races never seem to have amalgamated with the Latin settlers; the Serbs still wear their gorgeous costumes, and when I first visited these parts in 1884 every Serb was fully armed with knives and pistols (mostly flint locks) in his belt. I shall only refer to two or three of the many islands along the eastern coastline of the Adriatic.

On the island of Arbe, as well as on the eastern coast towns, the winged lion of St. Mark held sway. The Venetian campanile, built about 1200, is a beautiful example. The tower, exclusive of the spire, is 90 ft. high and 20 ft. square at the base. There is a fine proportion in this campanile, and great skill has been shown in carrying up the work with increasing delicacy in each succeeding story of the tower.

The perfect art of Byzantine architecture died in the onslaught of Avars and Slavs in the VIIth century, and in San Lorenzo, in Pasenatico, we find the return to civilisation in the VIIIth or IXth century, after Charlemagne's conquest. This early example like St. Donato of Zara, is crude, deformed, and misshapen perhaps; but in it are the germs of the Romanesque style which grew and flourished and survived longer on the eastern side of the Adriatic than anywhere else. So crude indeed is this church that the arches of the nave are actually of different heights. The capitals look like debased Roman work, but bear a Byzantine character with the large impost blocks.

It is now interesting to compare this crude work of the VIIIth or IXth century with the marvellous refinement of the Duomo at Parenzo. The Duomo of Parenzo, according to Mr. T. G. Jackson, can be shown, by documentary evidence, to have been built between 535 and 543. It is as fine as Sant' Apollinare in Classe at Ravenna or Santa Fosca at Torcello, and in the completeness of its plan with its atrium and baptistery it surpasses them. This beautiful example of a Byzantine basilica of the first period has fortunately been spared to us almost wholly in its original state. In 1881 it was necessary to lay a new floor, for the Duomo stands on a low peninsula which gradually, through the ages, is sinking into the sea. As the sea washed over the floor a new floor was laid 12 in. above the old one. When I saw this church in 1901 the custodian showed me the old floor, and he also showed me yet a still earlier floor at a depth of 3 ft. 9 in. below the present flooring. This lowest floor may be late Roman work—a floor, in fact, of a Roman building which stood on the site of the present church. To the west of the basilica is a square atrium, with a covered ambulatory around its four sides.

The perfection of Byzantine art is realised in the interior of the Duomo. The episcopal throne is at the east end of the nave apse, and the marble seats for the clergy are placed right and left of the throne around the sweep of the apse, the ends of the seats being terminated by dolphins.

The chief glory of the east end is in the early Byzantine mosaics of the VIth century, which form a high dado above the seats of the clergy. To modern ideas the combination of materials that have been employed in this mosaic may seem incongruous. Burnt clay of a dull deep red colour, obscure glass, polished marbles, and flat oyster-shells have all been employed; but combined together they give such an effect as would be impossible of attainment in glass alone. The oyster-shells still keep their gleaming pearly whiteness, and give peculiar emphasis to the design. The centres of the panels are sometimes polished slabs of porphyry. On the centre panel, over the episcopal throne, is a gold cross on a ground of serpentine and mother-of-pearl. Above this deep dado of panels the wall surface is entirely covered with mosaics, which are more in accord with our general appreciation of Byzantine mosaic; but for real courage of design I do not know of any mosaic to equal the high dado above the marble seats.

Pola, which has now become the most important Austrian naval base, must have been a still more important Roman town. The shell of a great Roman amphitheatre stands to-day outside the town as it stood in Roman days outside the city walls. It has been calculated by Dr. Kandler that the theatre would hold 21,000 spectators, besides 10,000 who might take part in the performances. These enormous numbers, Jackson says, "are, of course, quite disproportionate to the population even of Roman Pola, and prove that the shows and dramas were intended not only for the city, but for the province."

The town of Zara is approached through the Porta Marina, a Venetian structure with the great lion of St. Mark with his paw on the open Book. Inside the town stands the ungainly circular church of St. Donato. This, like San Lorenzo in Pasenatico, is an early example of returning civilisation at the beginning of the IXth century after the lapse of some three centuries since the building of the beautiful Duomo at Parenzo. It is perhaps even more debased than San Lorenzo, and the debasement is due to the same cause.

The Cathedral of Zara was not probably begun before the XIIIth century. It is basilican in plan, and it is perhaps curious that this plan should be so long continued in Dalmatia after it had been given up on the other side of the Adriatic. This Romanesque building, with its arcaded west front, is considered by Fergusson to be superior to San Michele or San Martino at Lucca, or the Cathedral at Pistoja or Sta. Maria at Arezzo. Its simple west porch, with its members of the arch truly corresponding with the shafts, is very correct in detail. Romanesque architecture in Dalmatia long continued as its national style after the rest of Europe has developed into Gothic. The west front of Zara Cathedral was built in 1324, or 150 years after the transition from Romanesque to Gothic in France and England.

The Cathedral of Sebenico is perhaps unique in its construction, for throughout the building neither brick nor wood has been used. As Jackson says, "indeed not only Italy, but Europe may be challenged to show another church of this size in which neither timber nor brick is employed, everything being constructed of good square stone, marble, or metal." This is no idle challenge; the walls and roof are all of stone, neither timber nor tiles are employed anywhere in its construction. If stone walls are sufficient protection against the elements it is difficult to see why the stone vaulting should not likewise suffice. I am of opinion that the honesty of this construction has much to commend it. It may be taken as an accepted canon in art that the construction of a building should be the basis of the design. To conceal the construction is an attempt to deceive the mind, and the more the cloak of deception is enriched the further the mind is carried from the true appreciation of the construction of the building. Now, in the Duomo of Sebenico the whole construction of the roof over the nave, aisles, and tower is equally apparent, whether viewed from the interior or the exterior of the building. In our Gothic work the whole construction of the vaulting is externally concealed from view by the timber and tiled roofs, but it is interesting to speculate as to how the upper surface of the vaulting would have been treated by the Gothic builders had they adopted the form of construction employed in the Duomo at Sebenico.

Traü is the next town further south of marked importance, and the Duomo of Traü is a building of the first importance. The city of Traü now stands on an island, and the island is approached over a wooden bridge.

It is a walled city which practically covers the island on which it stands.

To continue the journey southward, the city of Spalato or the palace of Diocletian is reached. Professor Freeman has rightly pointed out that "by the banks of the Tiber the city of Romulus became the house of a single man; by the shores of the Adriatic the house of a single man became a city." Diocletian did, in fact, when building his house build a city.

At the entrances provision was made for the raising and lowering of a portcullis. The grooves in the jambs are clearly defined, and the hole in the staging above the archway shows where the chain passed when raising and lowering the portcullis. I had always been under the impression that the portcullis was a mediæval device until I saw it at Diocletian's palace.

In their standard work, "Architecture of Greece and Rome," Messrs. Anderson & Spiers point out the four striking departures from true classic style that occur in Diocletian's palace, and they show that in no case do these departures make their first appearance here. The decadent features are:—

1. The arch over a wide central intercolumniation dates back to 151 A.D., being found in the Propylæa at Damascus and in the Temple of Atil.
2. Capitals carrying an arch without intervening entablature are found at Pompeii.
3. Columns carried on corbels existed in the Termæ of Titus, built in the Ist century A.D.
4. The accentuation of the Roman relieving arch over a lintel by enriching it with mouldings is found in the IInd century in Asia Minor and Syria.

They say that these departures are "the four leading features of the decadence in Roman architectural forms, and they are certainly exhibited in the palace at Spalato in a more striking manner than in any other building."

Salona, when it fell before the rush of Avars, was a mighty city, surrounded by a wall in which traces of eighty-eight towers have been found. At one of the city entrances three arches stood, the centre one for vehicular traffic and the side ones for pedestrians. The paved roadway here, as at Pompeii, shows worn ruts some 6 in. deep. Within the ancient walls is a great amphitheatre and the remains of a curious Christian basilica. A vast number of stone sarcophagi were being unearthed by Professor Bulié when I was there. Many were inscribed, but all had been rifled by the Avars. On the rocky side of the hill tombs had been cut, and entrances to them were gained by raising stone doors which ran in slots in the jambs. As we left Salona we noticed great numbers of classic fragments built in the walls at the side of the dusty road by which we journeyed to the beautiful town of Ragusa. The most interesting building in Ragusa is the Palace of the Rector of the Ragusan Commonwealth, and its history is one of the most complex I know; this complexity has been most cleverly unravelled by Jackson, and those who wish to know more about it should read his account of it. The difficulty which at first presents itself is that the upper portion, above the arcaded portico, is in Gothic work of the date 1435, and the portico which stands below it is Renaissance, and, contrary to the proper order of things, is of a later date. The date of the portico is, in fact, 1464, and thus was built twenty-nine years after the upper portion of the building.

Shortly, the history is that on this site stood originally a fort or castle which was pulled down, and the Rector's Palace was built on the site in 1388. The Ragusans kept their powder magazines close to this building, and during a fire which occurred on August 10, 1435, the magazine exploded and the palace was wrecked. The palace was thereupon rebuilt in that year, 1435, and one Master Onofrio Giordani di la Cava, of Naples, was engaged to carry out the work.

The Ragusans were slow to learn by experience, for they put their magazine as close to their new Rector's Palace as before. And, as before, a fire broke out. This fire occurred on August 8, 1462, and the palace was much damaged by the explosion. It became necessary to pull down the ruin; but as the upper portion was only partially damaged it was determined to use again the Gothic windows. Two architects were employed by the Grand Council to carry out the work. One was Michelozzo Michelozzi, the other architect was Giorgio Orsini, of Venice. Now, the original arcading to the portico of the 1435 palace had pointed arches, and these two Renaissance architects determined to put in round arches in the 1462 palace; they used some of the old capitals, and, I think, all the old columns, but in order to make up the necessary height, when they adopted round arches instead of the taller old pointed arches they inserted deep abaci. The old Gothic windows were reinstated in the upper floor. This is the explanation of the anomaly in this building, where the upper portion appears to be older than the lower portion.

I cannot close without paying my humble tribute of admiration and thanks to our Royal Gold Medallist, Mr. T. G. Jackson, R.A. He has been the pioneer through Istria and Dalmatia, and no man has contributed so largely as he to the sum of our knowledge of the architecture of these provinces. I have taken the liberty of quoting very freely from his three most interesting volumes, "Dalmatia," "The Quarnero," and "Istria," and by his kind permission slides from several of his beautiful drawings have been made to illustrate my paper. My thanks are also due to Dr. Frances May Dickinson Berry for her kind permission to reproduce some of the many photographs she has taken in the Balkan States.

And, lastly, I have to thank Mr. Hamilton Jackson and Mr. and Mrs. Holbach, and their publishers, for their kindness in allowing me to have reproductions made from the excellent photographs in their interesting books, "The Shores of the Adriatic," "The Austrian Side," and "Dalmatia, the Land where the East Meets the West."

Mr. T. G. Jackson, in proposing a vote of thanks to the author, said it was now twenty-eight years since he was in Dalmatia, and in that time no doubt things had a great deal altered, especially in regard to the means of communication. With a larger number of people visiting it one could not help thinking it would be spoilt in its simplicity. There was nothing which could be called a guide-book when he first visited the country, and, although Professor Freeman had made interesting sketches of some of the buildings, they gave no idea of what was done after the XIth century. To some extent he had the country to himself, and had to discover what there was to be seen. The history of the country also was very difficult to understand, as there was no connected history in existence. One had to hunt it up in the Byzantine, Greek, and the Latin of the Dalmatian histories. The history of the country was dual, that of the towns being quite distinct. In a number of towns on the sea coast there was, and still remained, the old Latin culture, and the towns themselves to this day were interesting survivals of the old municipalities of the older Roman Empire which had never altered their character. Outside the towns the country was peopled by Slavs, who for the most part talked nothing else but the Slav language. It was the constant endeavour of the two peoples to force their tongue on each other, which was the key to the political differences in the past and to those of to-day. The history of the towns during the Middle Ages was like that of the great Italian Commonwealth, each town having its own tenantry and Government and laws; each making treaties with each other, and going to war without reference to the supreme authority, although they were always subject more or less to Hungary and Venice. The history of every town had to be studied separately, and he found in almost every place some local gentleman who had studied the antiquities of his country and dived into the archives, which were very well preserved. The inhabitants of these towns had that strong feeling of citizenship which made them strive to surpass their neighbours, and this was one of the reasons why they found such beautiful buildings in these places. Mr. Hubbard had told them of the beautiful tracery of the little window at St. Donato of Zara, and it was curious that there was in the little Saxon church at Barneck, Northamptonshire, an almost similar window. There were also windows at Parenzo, of which one remained, which was about 3 ft. across, made of the same sort of Italian tracery, but it was cast in concrete. He would like to mention the extraordinary wealth of the two provinces in their treasuries. Almost every treasury was full of the most lovely embroideries, and there were samples of beautiful silversmith's work. Mr. Jackson drew attention to his drawings of some church plate in the Greek convent of Savina. The plate was dated for the Slavonic calendar, and it was XVIIth century work, although it was so archaic in character that they might well have been made in the VIIth or VIIIth century. The Slavs, however, produced very little, and the architecture, such as it was, was very humble. There were Slav artists, but these were all nationalised in the cities of the coast, and when they became Latinese they produced very fine work.

Mr. Phené Spiers, in seconding the motion, said the range of the paper was so great that it was impossible for him to refer to more than one subject. This was in reference to the statement about the Palace of Diocletian, that it exerted a greater influence upon subsequent styles, either Romanesque or Gothic, than any other building in the whole history of architecture. Mr. Hubbard further referred to the statement of Professor Freeman as to the four leading features of the decadence in Roman architectural forms, which were exhibited in the Palace of Diocletian. He was afraid that theory had now fallen through, as, of course, Professor Freeman was not acquainted with the discoveries which had been made since in the East. The fact was that nearly all these new features were derived from the East, and the design was thought to have been derived from the City of Antioch. The arrangement of the towers was the same as that at Antioch, and one authority was certain that some architect must have come from Antioch and gave the design. There were four characteristic features put forward in the Palace of Diocletian as denoting the great change. The first was the arch over the wide central intercolumniation, but buildings of the IInd century in Palestine showed this arch strongly developed, and he had a photograph of work of the IInd century by Assyrian Greeks which showed this. The second feature was the arch rising off the capital, but there were instances of this to be found at Pompeii. The third point was the columns carved on corbels, but these existed in Palestine, dating from the IInd century. Mr. Spiers proceeded to exhibit two photographs of buildings 150 years older than the Palace of Diocletian, to show that it was Oriental influence which had led to these change of features.

Dr. Arthur Evans said it was true that he had been acquainted with Dalmatia, but after a period of twenty-five years he had forgotten a good many things. One point always to be borne in mind was the way in which architecture was really to a great extent dependent on the physical and geographical conditions of the country. In Dalmatia they had a sea coast admirably adapted for maritime and commercial purposes, and being on the great line of what was in the early times the great line of intercourse between Greece and Central Europe. The result was that on the Dalmatian coast civilisation began very

early. In the VIth century Corinth sent out colonies in that direction, and the tale was taken up by the great Syracusian Emperor, who was the great predecessor of the Roman Empire, and one of the pillars of his policy was to establish a great chain of Adriatic posts. So they had on the coast civilised life going back very early indeed. They had remains going back four or five centuries B.C., although nothing great architecturally was discovered. Then, of course, they had the Roman Conquest. One other thing to remember was the inner influence of the Balkans, although the Macedonians captured India before they got a grip of what was now Albania. They had these influences running through the architectural story. They saw two great influences alternating. Firstly, the great force of Rome, because the Romans did override nature and carry great roads into the interior, but when the Romans passed away the interior relapsed pretty rapidly into barbarism. The Palace of Diocletian was interesting in one way which had not been mentioned, which was that it was the last stronghold of the power of the West. The other influence was Venetian, which was very strong indeed in Dalmatian art.

The vote of thanks having been carried,

Mr. Hubbard briefly replied, and said there were several fine specimens of Dalmation needlework in the adjoining room.

The Chairman announced that the next meeting would be held on Monday, April 18, when Professor Lethaby would read a paper on "The Architecture of Adventure."

THE ROYAL LIVER BUILDING, LIVERPOOL.

BETWEEN Canning and Prince's Docks, on the Liverpool side of the Mersey, there is now a plot of land which was once occupied by the old St. George's Dock. Part of this area forms the site of the dock offices, parts remain as open spaces and streets, and on another part the immense office building of the Royal Liver Friendly Society has been erected.

Bounded at the back by the Strand, on one side by the continuation of Water-street, on the other side by St. Nicholas-place, and in front by the space known as Pierhead, the Royal Liver Building stands in a conspicuous situation, enabling the observer, whether on land or water, to obtain an excellent view of the structure.

With the exception of the outer curtain walls the building has been constructed entirely in ferro-concrete (Hennebique system), from the designs of Mr. W. Aubrey Thomas, the architect, for whom details of the ferro-concrete work were prepared by Messrs. L. G. Mouchel & Partners.

The building is 301 ft. long by 177 ft. 6 in. wide, these dimensions continuing up to the main roof at the height of about 170 ft. above street level, and accounting for the cubical contents of nearly 10,000,000 cubic ft., irrespective of the basement story and several stories in the corner towers and two large main towers at either end of the structure. The domes surmounting the latter are at the elevation of 295 ft. above street level, the extreme height from foundation level to the topmost point being 360 ft., or about the same as that of St. Paul's Cathedral.

From these figures it will be seen that the building is of great magnitude, and particularly worthy of note for its commanding size; including eleven stories up to the main roof and six stories in each main tower, the Royal Liver Building comes fairly within the category of "skyscrapers," which we are not anxious to encourage in Great Britain.

Fig. 1 is a cross-section, showing the various floors in the main block and the general proportions of the towers.

Considered from the structural point of view, the building is essentially a monolithic frame consisting of columns, beams, arches, and floors moulded, as far as possible, in perfect connexion, and further bonded by the inter-anchorage of bars and rods of steel by which every concrete member is reinforced. All floor, wall, and roof loads are transmitted to secondary and main beams, and in some cases to arches, being transferred next to columns, some of which are supported by beams or arches, which in turn pass on their loads to main columns, and finally the whole of the loading reaches the bases of the columns and is distributed over the foundations.

Thus the duty of the ferro-concrete frame is strictly analogous to that of a steel skeleton. It is claimed, however, that a ferro-concrete frame is superior in respect of strength and rigidity owing to the fact that it is constructed throughout without joints or articulations, and by offering far greater security against fire.

One very important merit of the framed construction adopted for the Royal Liver Building is the manner in which the safety of workmen is assured during the progress of construction. Instead of carrying up a skeleton affording precarious foothold at lofty altitudes, as in structural steelwork, the ferro-concrete constructor moulds each floor at the same time as the corresponding columns and beams, so that the men engaged in setting up the framework of the next story have the advantage of a continuous floor for the conduct of operations. As the stairways are built in each story simultaneously with other structural details, the men also have much safer means of getting from story to story than that afforded by the familiar ladder.

The ferro-concrete frame provides conveniently for the support and secure bonding of the granite curtain walls constituting the exterior sheathing of this building. These walls are nowhere more than 14 in. thick, the weight being taken at each story by lintels forming part of the general framework.

Before directing attention to some of the more interesting structural features, we may mention that the Royal Liver Friendly Society will occupy two entire floors for the accommodation of their clerical staff, the stories selected being at the elevation of more than 150 ft. above river level. The other floors of the building are being leased

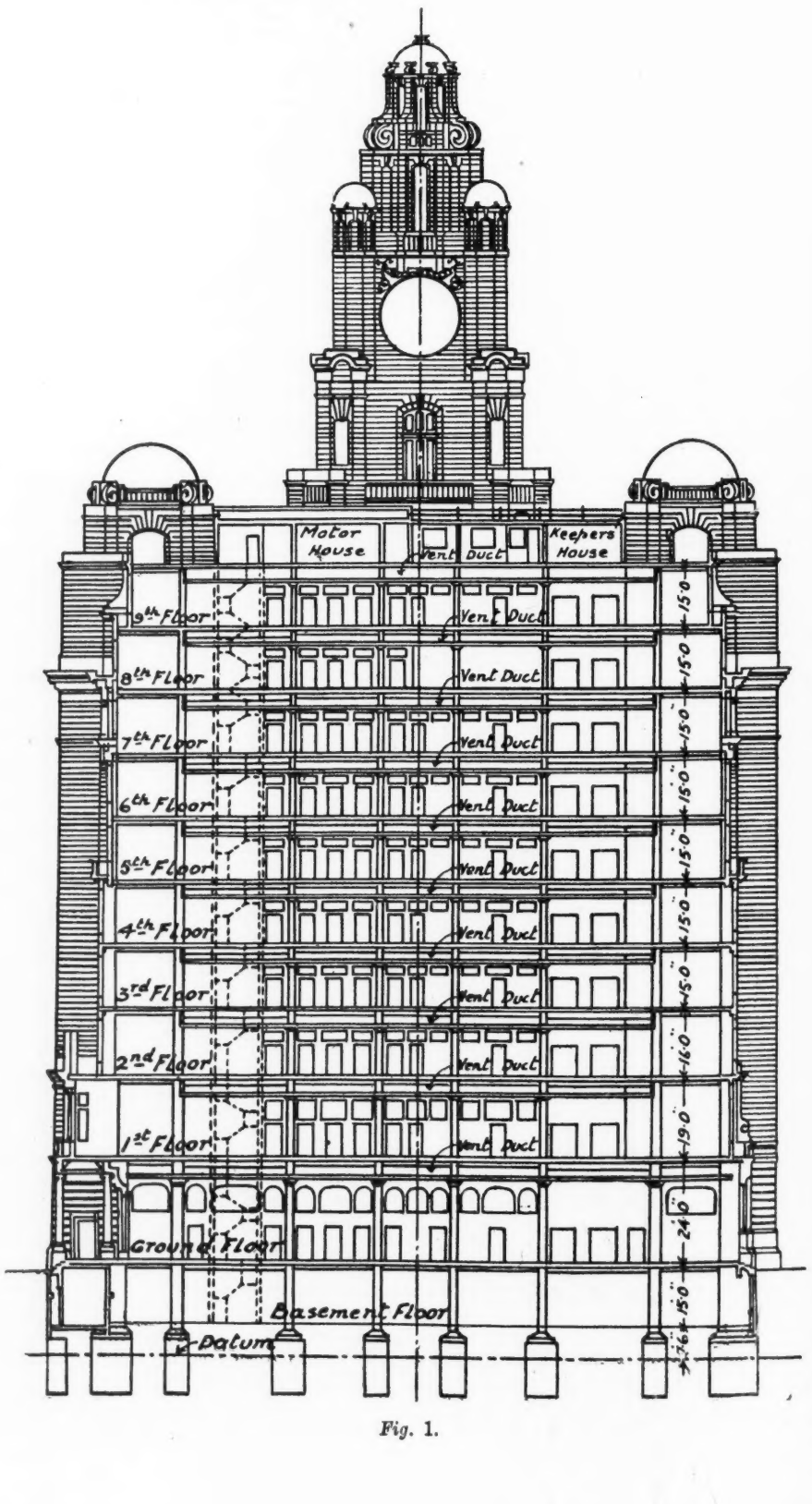


Fig. 1.

to public companies and others. Provision for natural light in the interior rooms is secured by two spacious wells, 58 ft. square, stairways are provided at various points, and intercommunication between the floors will be further secured by an installation of fourteen passenger lifts and two goods lifts. Roomy shafts have been built for pipes and electric cables, for ventilation and for reception of the boiler chimney. On several floors the interior partition walls have been omitted, the object being to erect partitions in accordance with the requirements of tenants. This plan will cause no structural difficulty, as the floor beams and panels are all of long span and capable of supporting heavy loads without appreciable deflection. Therefore, it will be practicable to construct interior walls and office partitions wherever required without the necessity of considering the position of walls on the floors above or below.

Having regard to the unstable character of the made ground filling up the old St. George's Dock, and the enormous column loads to be dealt with, the engineers decided to sink plain concrete foundation piers down to the old red sandstone encountered at the average depth of about 40 ft. below street level. The piers were connected at the top where necessary by ferro-concrete beams or slabs, for the transmission of loads from some of the smaller columns.

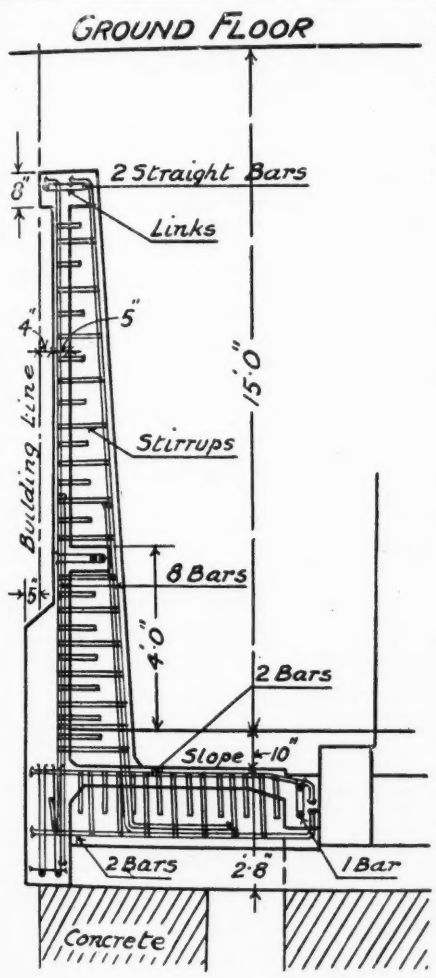


Fig. 2.

The first operation commenced by the contractors was to excavate for the basement story, this work involving the removal and disposal of fully 50,000 cubic yds. of earth. Then came the sinking of the foundation piers, and the construction of retaining walls all round the sides of the pit.

Fig. 2 is a typical section of the retaining wall, which comprises a 5-in. vertical slab, finished along the upper edge by a coping 8 in. deep by 18 in. wide, and stiffened by counterforts and horizontal ribs, the whole being monolithic, with an extended footing, as shown in the drawing. It was not quite easy at first to see what would be the best method of supporting the footing of the retaining walls. The ground being unfit for the imposition of any weight, the problem was finally solved by constructing ferro-concrete beams between the foundation piers in the outer row. The beams were incorporated with the retaining walls, which themselves representing beam construction of great proportionate depth, facilitated the accomplishment of a task that would have been impossible in the case of massive retaining walls such as are employed in ordinary practice.

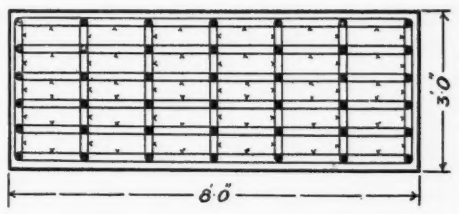


Fig. 3.

However, at certain points no piers were available for utilisation in the manner described, and the structural engineers had to seek an approved alternative method of carrying the retaining wall without trusting in any way to the soil. The answer to this question was provided by the construction of cantilevers, projecting as much as 11 ft. from the main columns, and of sufficient strength to act as intermediate supports for the continuous beam represented by the retaining walls. The same cantilevers were also applied to the support of the basement flooring.

On completion of the retaining walls and the connecting floor slab the entire excavation was converted into a huge watertight compartment perfectly suitable for the establishment of offices or chambers wherein documents and other papers could be stored without risk of injury by moisture. The need for treatment of the kind described is evidenced by the statement that the underground water level frequently attains the height of 10 ft. above the basement floor line.

Fig. 3 shows the dimensions and arrangement of the longitudinal bars and transverse links in one of the main columns. The member represented is one of those extending from foundation level to the base of the main towers, the load reaching the enormous total of 1,500 tons. These columns vary in cross-section from 3 ft. square at ninth floor level, where the load is 900 tons per column, to 3 ft. by 8 ft. at basement floor level where the above stated maximum load occurs. The columns in the exterior part of the frame receive load from the beams carrying the granite curtain walls as well as part of the floor loads. Their dimensions range from 12 in. by 14 in. at the top to 1 ft. 9 in. by 8 ft. at the base, where the total load is fully 750 tons on each column.

A complete account of the beam construction in the Royal Liver Building would form a most instructive study. In addition to numerous small members of this class, there are hundreds of beams with spans between 40 ft. and 50 ft., a large number of arched beams, and several arches with the clear span of 60 ft. carrying concentrated loads up to nearly 1,500 tons. Owing to the varying incidence of the concentrated loads, each of the last-mentioned members has necessitated the greatest possible care on the part of the designer, and in some cases the work involved in the drawing office has extended over many weeks. The arches hidden away in the framework of the building are really engineering works of no small importance, and each one of them could only be described adequately in a fairly long article with numerous illustrations. On the present occasion we must be content to give a few brief notes on the different types of beams and arches exemplified in the structure.

Most of the main floor beams are

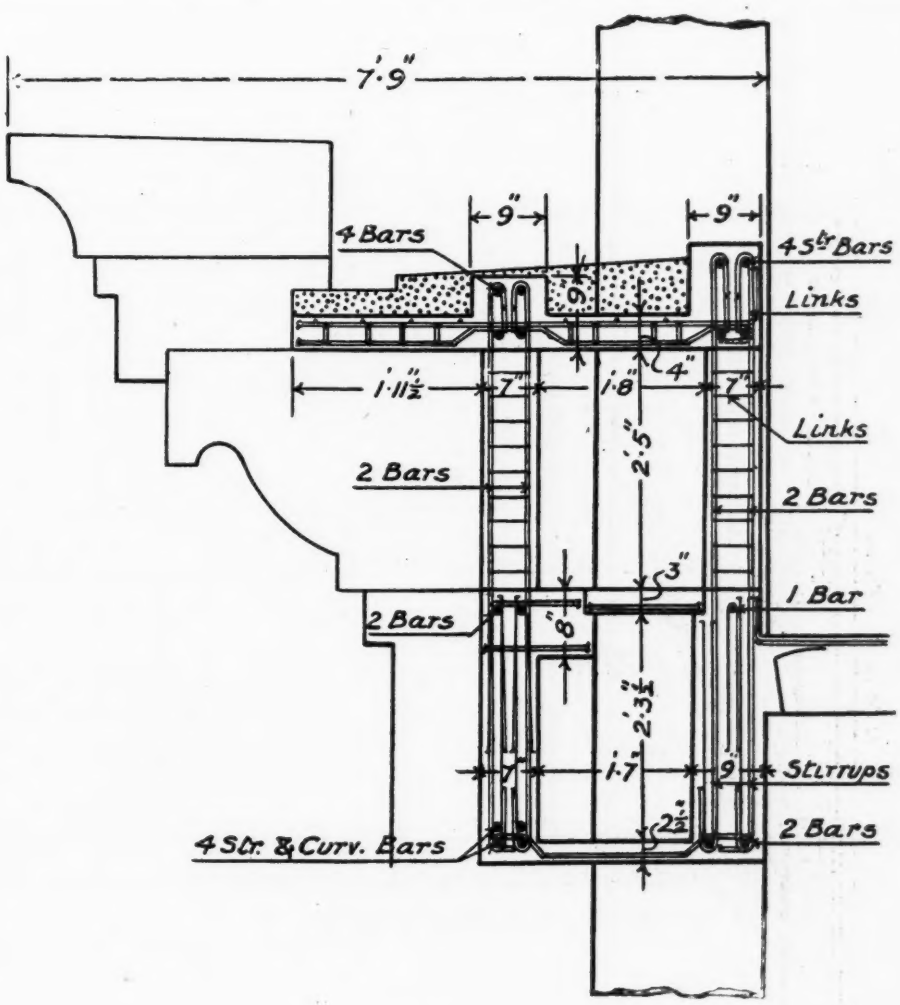


Fig. 4.

constructed with parallel sides, the concrete being reinforced by bars and stirrups arranged as customary in the Hennebique system. Some of the beams are curved at the intrados, and others are of quite special design to provide for heavy concentrated loads at different points.

One particularly interesting example of long span beam construction is furnished by the arched beams extending from side to side of the interior light wells. These members span openings 58 ft. wide without intermediate support of any kind, being of remarkably slender proportions and lending themselves admirably for support of the glazing with which the light wells are covered at first floor level.

Fig. 4 gives details of the beams and cantilevers carrying the main cornice which extends around the building at eighth floor level. The cornice itself was added for architectural reasons. and has nothing whatever to do with the structure except to impose additional weight on the ferro-concrete frame. In order to give the boldness and appearance of massive strength thought necessary by the architect, the cornice projects 6 ft. from the face of the granite curtain walls and is about the same depth from top to bottom.

As will be seen on reference to the drawing, the cornice is merely an adornment, and, although looking very strong and massive, is really comparatively light, being not more than one-third the weight of a solid stone cornice.

The two towers each rise 125 ft. above the main roof. It will be readily understood that the load imposed upon the roof members is of great magnitude. Many architects would think it a fairly onerous task to provide secure foundations for a tower of the same height on the ground. In this case, however, foundations have been constructed in mid-air at the elevation of 235 ft. above foundation level, an operation which has been performed by the arrangement illustrated in part by Fig. 5.

A considerable proportion of the weight is transmitted by columns to arches of the type there shown, the members in question having the clear span of 60 ft. and the rise of 32 ft. Each of the arches extends through two stories and supports numerous beams in addition to six concentrated column loads ranging from 110 tons to 345 tons, making up the enormous total of 1,480 tons per arch.

Each of the beams denoted in Fig. 5 by the letter K is 51 ft. long with the clear span of 41 ft. 3 in. between supports and a cantilever projection of 3 ft. 9 in. at one end. The weight of 1,480 tons is concentrated at two points on each beam of type K, which has also to carry distributed loading to the value of 100 tons, bringing up the total load upon each member up to 1,580 tons, this very considerable load being transmitted down to the foundations of the building by the main columns previously described.

It must be admitted that to deal successfully with ferro-concrete construction involving such exceedingly heavy loads occurring at such great altitudes requires considerable courage and qualifications which cannot be acquired by mere book learning.

The corner towers are carried by a ferro-concrete frame encased in granite and surmounted by a ferro-concrete dome of 23 ft. diameter, the shell of which varies in thickness from 6 in. at the base to 4 in. at the crown. The exterior of each dome will be sheathed in sheet copper.

Fig. 6 is a section of the hollow monolithic flooring system adopted throughout the building. This type of floor deserves more than passing notice for more than one reason. It comprises hollow blocks or tubes of fireclay or concrete, 24 in. long by 20 in. wide by 7 in. deep at the middle, supported by ferro-concrete beams, and covered by concrete filling, making the floor 9 in. thick.

The hollow tubes obviate unnecessary weight, and conduce to the non-conduction of sound, the level surface at the under side is suitable for plastering or any other form of ceiling finish, the monolithic character of the beams and concrete filling affords ample strength and obviates vibration, and the method of construction reduces the employment of moulds and centring to a minimum.

As may be seen in Fig. 6, the only moulds necessary are furnished by planks and the hollow tubes, each plank being supported by struts from the floor beneath. After the beams have been moulded between the tubes the remainder of the concreting is finished without cessation and the surface is struck off at the specified level. The result is to form a series of connected T-beams the ribs of which are spaced very much closer than the secondary beams or joists commonly employed in reinforced concrete floors.

Owing to the self-contained nature of the main framework in the Royal Liver Building and its absolute independence of the granite curtain walls, the building of the latter could have been commenced simultaneously at each floor level, if that course had suited the convenience of the contractors. As a matter of fact, wall building was actually started at three different levels—the ground, third, and seventh floors.

In the construction of the important building described briefly in this article a very complete installation of plant and machinery was laid down by the contractors. All mechanical appliances on the works were operated by electric power, current being obtained from the Liverpool Corporation and distributed to numerous motors with the aggregate of nearly 200-horse-power.

Concrete was prepared throughout in a Ransome electrically-driven mixer, arranged with a platform at the back of the charging hopper, reached by two inclined barrow runs, one used for the delivery of aggregate and the other for sand. All cement was brought in on the same level as the platform. The mixer was provided with a tank automatically discharging the correct volume

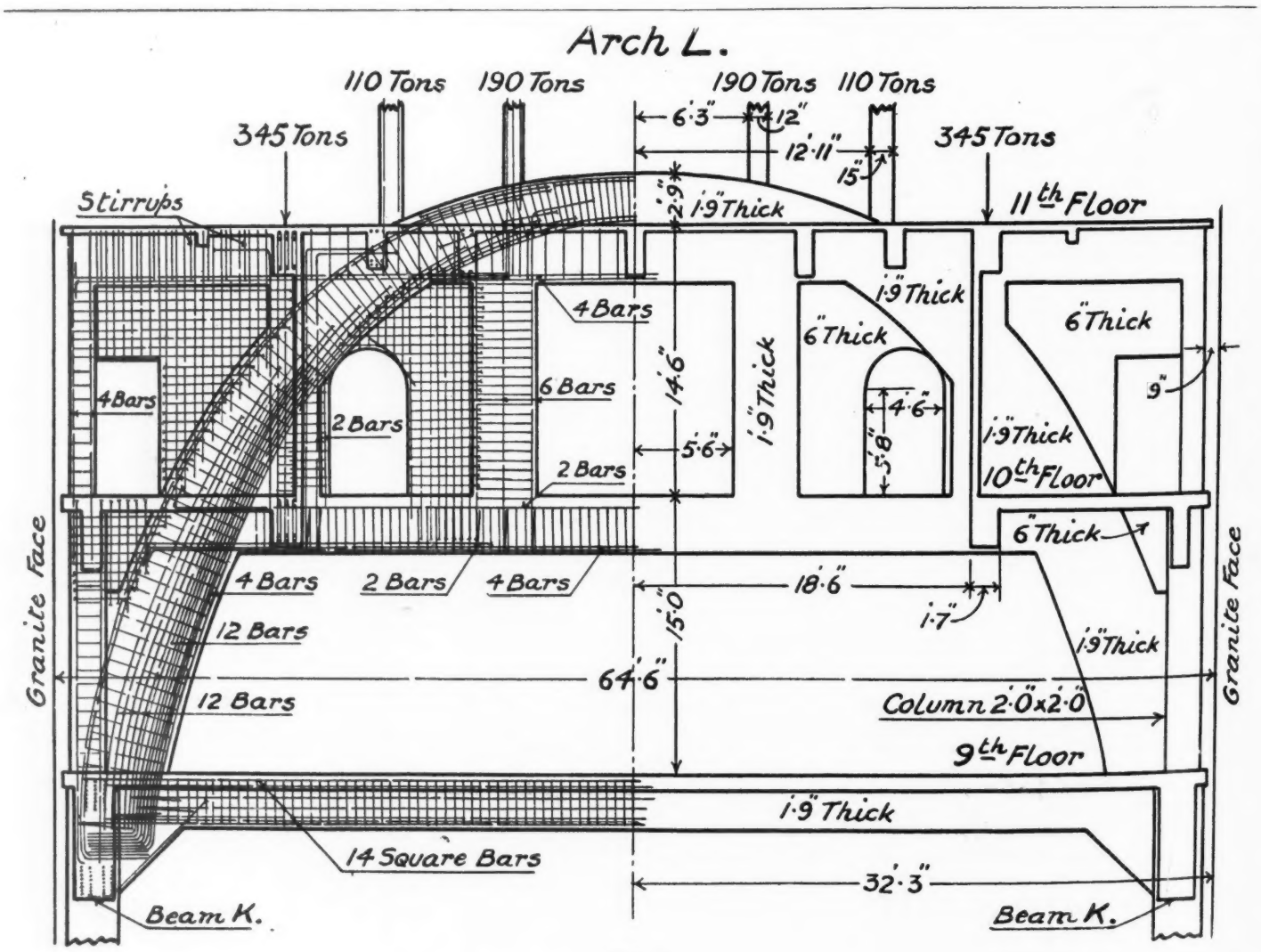


Fig. 5.

of water for each batch of concrete, the tank being connected with the city water mains.

A 24-in. gauge track laid in front of the machine enabled the contractors to discharge mixed concrete directly into trucks used for transporting the material to different parts of the site.

The whole of the mixing plant was installed in the basement of the building so that aggregate and sand could be delivered in shoots from street level to the stores below.

It is stated by the contractors that the plant has worked most satisfactorily, no difficulty having been experienced in turning out upwards of 200 mixings of 20 cubic ft. each in a day of nine hours, the concrete throughout having exhibited remarkable uniformity of constitution and consistency.

The fact that the uppermost floor of the building is 262 ft. above ground level and 277 ft. above the basement floor necessitated the provision of hoisting plant on a large scale. Six electric hoists were installed, three employed for the conveyance of material between the basement and the tenth floor, a total distance of 179 ft.

Each of the principal hoists comprises an electrically-driven winch with a drum carrying 350 ft. of steel cable, the motor being capable of developing 24-horse-power at 430 revolutions per minute and enclosed in a steel-plate casing so as to make it suitable for operation in the open air. The winch is capable of raising loads up to 30 cwt. at the rate of 200 ft. per minute, and to deal with loads up to 3 tons at proportionately lower speed. The hoisting platform is 6 ft. square, was built of steel with timber flooring, and constructed suitably for running in steel guides extending for the full height of the lift. By means of electric signals on each floor the platform can be stopped at any required level.

A separate hoist on the ground floor of the building was installed for the delivery of steel bars employed as reinforcement, and two smaller belt-driven winches were provided for hoisting material destined for the construction of the two main towers.

It is stated that the system of hoisting plant has enabled the contractors to execute work with far greater rapidity than would have been possible with cranes. One great advantage secured was the saving of time that would otherwise have been occupied in the removal of heavy cranes from floor to floor with the progress of work, the successive raising of the hoist-head pulleys being effected in a few hours at the week-end so as to avoid interruption of any kind.

On each floor a system of 24-in. gauge light railway tracks was laid down, enabling materials to be run in wagons from the concrete mixer or from the interior or exterior of the building to the hoist platforms. On arrival at the required level the wagons were transferred to the tracks and hauled to their destination. All concrete is conveyed in steel wagons of the side-tip pattern, and steel, granite, and other materials in timber flat-topped trucks.

By means of this system of transportation all ordinary wheeling and carrying was obviated, a matter of great importance in view of the considerable distances to which materials had to be conveyed from the hoists.

To enable the contractors to deal economically with the large quantities of timber used in the construction of moulds, centring, shuttering, and bracing, an electrically-driven circular saw was installed on the first floor as soon as the concrete had hardened sufficiently.

The building of the ferro-concrete framework was commenced in June, 1908, and completed up to tenth floor level in June, 1909, the retaining walls and other works having been executed in the same period. Including the basement and ground floors, the rate of progress was little more than one month per story, which is a very good record considering that each month's work involved the building of a frame destined to enclose a space measuring more than 600,000 cubic ft. At the present time the structure is virtually completed, although a good deal of interior work remains to be performed.

As already mentioned, the Royal Liver Building was designed by Mr. W. Aubrey Thomas, of Liverpool, with the co-operation of Messrs. L. G. Mouchel & Partners, as ferro-concrete experts, the building contractors being Messrs. Edmund Nuttall & Co., of Manchester.

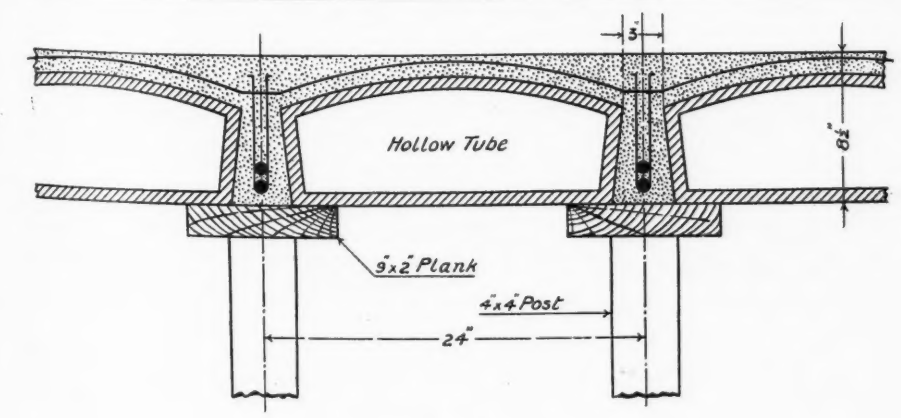


Fig. 6.

THE COMPETITION FOR THE NATIONAL MUSEUM OF WALES.

The importance of this competition, and the value to the younger members of the architectural profession of being able to acquire a broad and logical method in the preparation of competition plans, is our justification for supplementing the critical notice that has already appeared in these columns with an analysis of the types of plan submitted, illustrated by sketches representing a few of these types.

In order that the problem set may be intelligible, it is necessary to commence with a brief

SUMMARY OF THE CONDITIONS.

The Council of the National Museum of Wales is prepared to receive designs for a new museum at Cardiff, at a cost for the completed building of 250,000*l.*, inclusive of carving, but exclusive of decorative sculpture, that may be presented later, for which positions should be provided by the architect.

It is thought that about one-third of the building will be erected in the first instance, and this portion will probably have to house temporarily all the six departments hereinafter enumerated.

From the position of the site on the east side of the City Hall and the relation of the Law Courts on its west side, to that building as a centre, it is thought desirable that externally the museum building should be designed in harmony with these buildings, that, so far as possible, it may be in sympathy with the general scheme adopted. All elevations must be executed in best Portland stone.

Accommodation.

The following areas should be regarded as minima, and may be increased if found practicable:—

Exhibition Galleries.

1. *History and Antiquities.*—A room about 3,000 sq. ft., with from four to six alcoves or smaller rooms 15 ft. deep along each side, all lighted from above. Rooms amounting to 6,000 sq. ft., lighted partly from above and partly from the side.

2. *Geology and Mineralogy.*—A room or rooms 4,000 sq. ft. This room should lead on to the Historic Department.

3. *Welsh Natural History.*—A room about 3,000 sq. ft., with from four to six alcoves or small rooms, lighted from above, on each side.

4. *Zoology and Botany General.*—A room or rooms amounting to 12,000 sq. ft., lighted partly from above and partly from the side.

5. *Industries.*—A room or rooms, 4,000 sq. ft., lighted from above or from the side.

6. *Art.*—A gallery or galleries for modern pictures, 4,000 sq. ft., between 20 ft. and 24 ft. high, lighted from above; the light to illumine the sides of the room rather than the centre. A sculpture gallery, 2,400 sq. ft. by about 20 ft. high, lighted from the upper part of one side or from one side of the roof. Rooms amounting to 5,600 sq. ft.

7. *Children's Room.*—A room about 2,000 sq. ft. is to be set apart for a children's museum.

8. *Aquarium.*—A room about 1,500 sq. ft. near the centre of the lower part of the building should be set apart for an aquarium. It must be shielded, as far as possible, from the influence of external changes of temperature, and must not be in proximity to the heating apparatus.

Rooms for Study and Reserve Collections.

Each of the following departments (Antiquities and History, Geology, Botany, Zoology, Industries, and Art) will require about 6,000 sq. ft. These rooms may be lighted by side windows.

Reserve collections are materials for the use of specialists and duly qualified students. They will not be open to the public, but only to persons provided with students' tickets.

It is not necessary that rooms for these should be on the same level or even contiguous to the exhibition galleries of the same department. They may, if more convenient, be grouped together as a separate section.

In connexion with the reserve collections, there should be two or three rooms about 15 ft. square for research students.

Administration and Work Rooms.

Court and Committee.—A board-room, capable of holding 100 persons, and a smaller room, holding, say, twenty-five persons, will be required. In both rooms provision for the representatives of the Press must be made.

Director.—The director's room should have about 300 sq. ft., and should be in a central position, so that all points of the museum can easily be reached from it, but it is desirable that it should not be too easily accessible to the general public. A small room, say, 15 ft. square, for research purposes, should open from it on one side, a similar room for the director's secretary on the other, and from this again a clerks' room. A strong-room for the preservation of documents should be provided in proximity to it. These rooms should be near to the board and committee rooms. A north light is preferable.

Keepers of Departments.—A room about 300 sq. ft., which should be in proximity to the collections under his charge, will be needed for the keeper of each department.

Workrooms.—The complete building should allow of a separate workroom for each department.

Library.—It would be convenient if the library were situated near the director's office. It should contain steel shelving to hold 20,000 volumes, with space for map cases, librarian's desk, and a table for readers. The floors in the book-stack must not be more than 7 ft. 6 in. apart.

Lecture-rooms.—A large theatre suitable for lectures, capable of holding at least 500 people, should be provided, with convenient access from the outside. A smaller lecture-room is also desirable.

Refreshment-room, printing and photographic departments, workrooms, stores, elevators, porters' room, lavatories, cloak-rooms, etc., are also to be included in the scheme.

General Remarks.

The purpose of the building is to preserve and display articles of various kinds, not only with satisfaction to the connoisseur in each variety, but with a taste and artistic refinement likely to waken the interest of the public generally. Its corridors and staircases should be of ample size to permit of exhibits being placed on or in them without interference with their use as a means of circulation, and both they and the exhibition-rooms

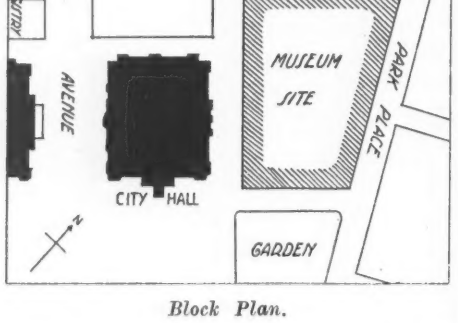
should be varied in size and in method of lighting so as to afford opportunities for the exhibition of varieties of objects.

The main entrance for the public may be from either of the streets on the south or west boundaries that the competitor may deem best.

Internally, the buildings should be finished in a simple and dignified way, free of ornamental or other detail, likely to compete in interest with the exhibits.

In order that the interior may be as adaptable as possible, the erection of permanent interior walls and columns should be reduced to the minimum consistent with proper and substantial construction.

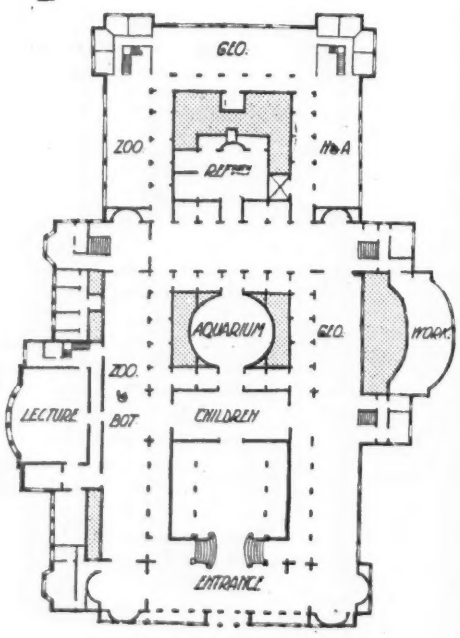
The floors of each department of the building must be on one level, so that a truck can be run from any one part to any other; different levels, if any, between departments must be connected by elevators.



Block Plan.

The conditions clearly indicate the intention that the new buildings should harmonise with the City Hall, but not the extent to which this harmony should influence the plan, and this has evidently been the main difficulty which has met competitors in laying out their schemes. Most of them have felt it undesirable to make any concession in this respect, and they may fairly claim to be justified by results, as the first, second, and third designs belong to this category. That the assessors did not overlook this point is made evident by the selection of the fourth design, which makes great sacrifices in order to continue the existing north frontage line of the City Hall and west frontage of the University. The plan by Mr. Marshall Mackenzie follows somewhat similar lines to Messrs. Milne & Hepburn's, and we give one by Mr. Matt. J. Dawson, which attempts to solve the same problem, while retaining symmetry about both axes for the main body of the museum.

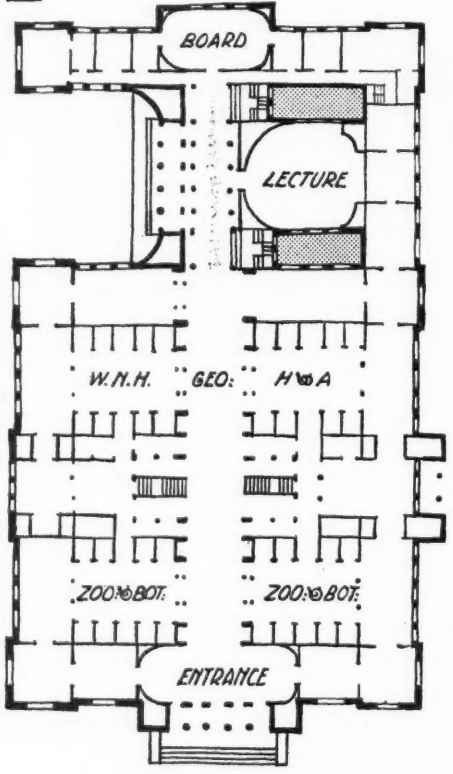
I



Mr. M. J. Dawson.

This solution, though ingenious, does not appear entirely satisfactory, and that by Mr. R. Atkinson appeals to us as a more legitimate one. The main body of his building follows exactly the axial lines of the municipal buildings, and the recessed court at the north end terminates the road to the north of them. The chief weakness of this plan would lie in the thin effect of the north-west wing, as compared with the mass of the remainder of the building.

II

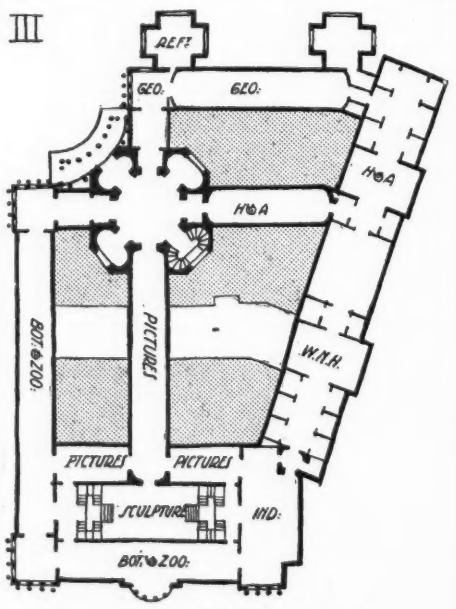


Mr. R. Atkinson.

It is curious that, although Mr. Atkinson has taken such pains to reconcile the lay out of his building with those existing, he should have adopted a scale in his design that utterly wrecks any suggestion of combined effect.

A third method of dealing with this awkward north-west corner is that adopted

III



Messrs. Reilly, Wood & Burroughs.

by Professor Reilly with Messrs. Wood & Burroughs, who are followed by one other competitor in this. The treatment of the internal angle is good, but apparently too much at variance with the other requirements of the building to give such a plan much chance of success.

Messrs. Lanchester & Rickards in their designs retain the axial lines of the municipal buildings, extending northward with an apsidal addition.

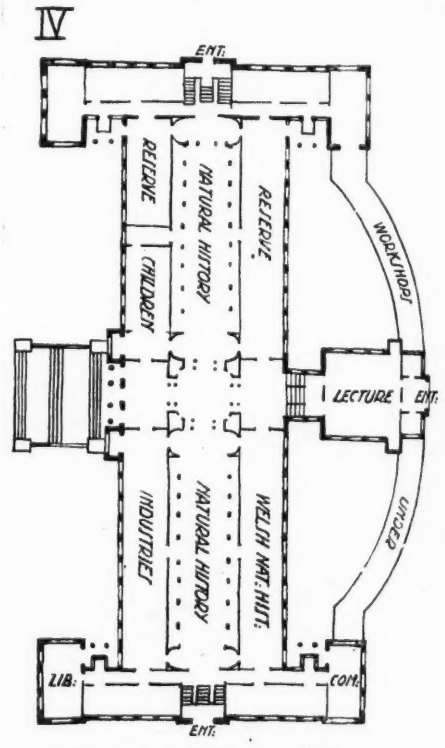
Another competitor, working on a somewhat similar idea, gives his plan the outline of a horseshoe magnet.

Having briefly dealt with the types of plan that indicate a recognition of the existing buildings, we may pass on to those (a large majority) that have ignored them in respect of their horizontal dimensions.

Of course, this materially simplifies the problem, and when, as in the present day, the fulfilment of practical demands is regarded as outweighing immeasurably the architectural quality, it might reasonably be expected that such designs would have a better likelihood of achieving success.

With the exception of a few plans which include one or more spacious internal courtyards, most of the designs are based on

IV



Messrs. Crouch, Butler, & Savage.

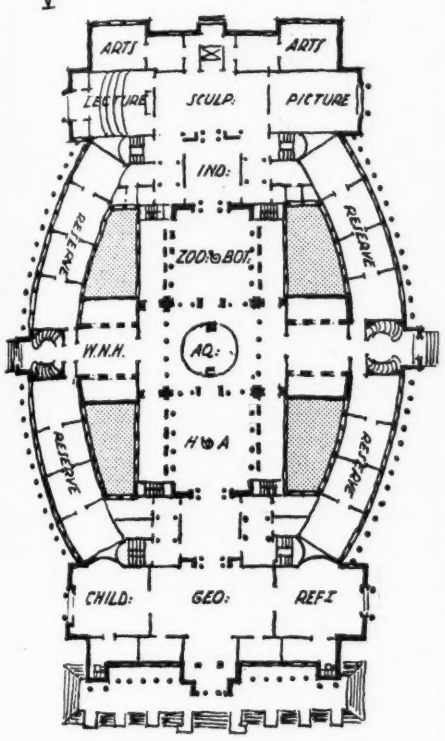
variants of the gridiron system, with small courts or the corresponding spaces filled with one-story galleries. These are generally better when provided with a large hall the full height of the building, as in Mr. Hare's plan (see plate), but before dealing with this group we wish to call attention to a very broadly conceived scheme by Messrs. Crouch, Butler, & Savage, in which all internal courts are dispensed with and the whole museum is massed into one great block, reminding one somewhat of the Alte Pinakothek, Munich.

Mr. W. Haywood has had a rather similar idea, but he has added two projecting galleries on each side, forming three recessed courts between; his plan is, however, too much subdivided for the purpose in view.

Mr. G. J. Scott's design displays a markedly original conception, and his plan has that decorative quality too seldom seen on this side of the channel; it would, however, hardly be calculated to enhance the effect of the neighbouring buildings, its forbidding and ponderous character calling forth the appellation of "The Dreadnought" from a casual visitor to the exhibition.

Mr. Fulton's plan is based on the same idea as Mr. Hare's, but is not quite its equal in practical detail, though most would give it the palm in respect of its architectural treatment.

V



Mr. G. J. Scott.

Mr. Davison's also belongs to this category, but suffers from the lack of any internal hall dominating and giving character to the numerous vistas through the building.

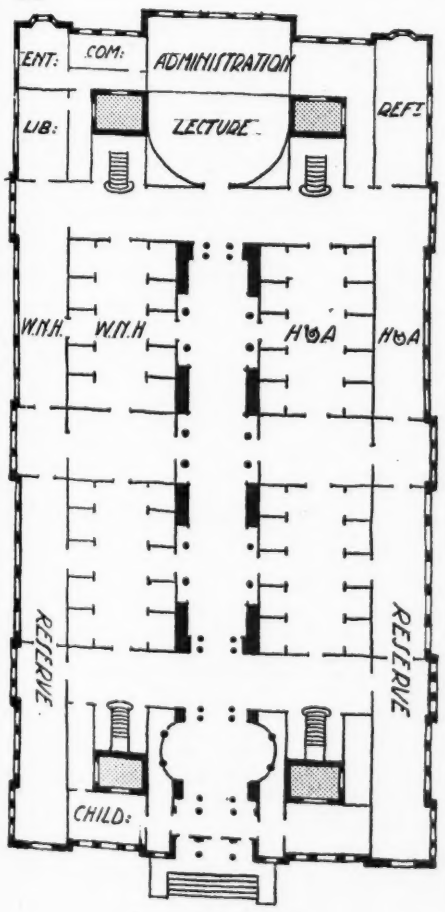
The same criticism may apply to the design by Messrs. Wills & Anderson, who have submitted a very workable scheme with all the public galleries on the first floor and the reserves under, but at the head of the main stair, exactly where the greatest effect of space is demanded, their design is unfortunately cramped.

Among the competitors who have felt the desirability of a good central hall may be named Mr. Malcolm Stark, Mr. T. Washington Brown and Messrs. Tanner, Clapham, & Green, Messrs. Lanchester & Rickards, and Messrs. Jemmett & McCombie.

We will add one plan, that by Mr. S. K. Greenslade, not as exhibiting any marked divergence in its original conception, but as distinguished by the close study that has been given to the requirements of such a museum as this, and the immense pains he has been at to fulfil these requirements in exactly the most suitable way. If Mr. Greenslade had started out with a broader basis for his design he might have gone far toward attaining a higher position.

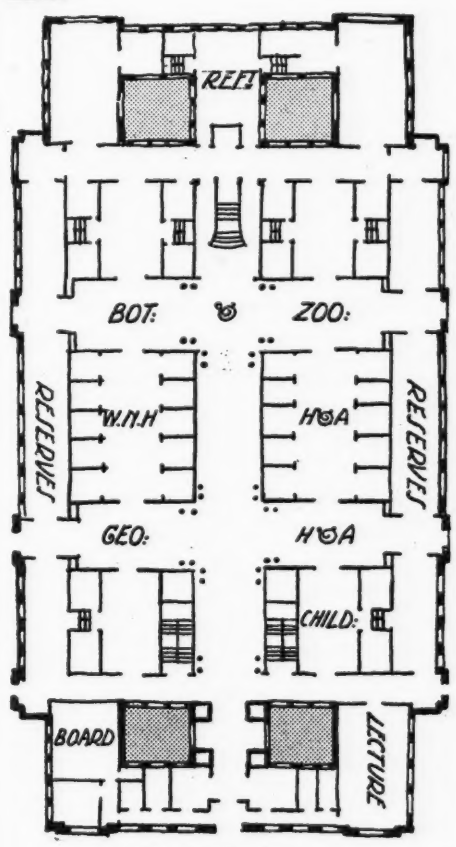
Next to the question of securing harmony of design between the museum buildings and those of the City Hall, the problem of the relationship the reserve collections should have to the Public Galleries was evidently the one that most exercised the competitors in the preparation of their plans. As will be seen from the conditions, absolute freedom was permitted on this point, but in the adjudication considerable importance was naturally attached to the solution of this problem.

VI



Mr. J. B. Fulton.

VII

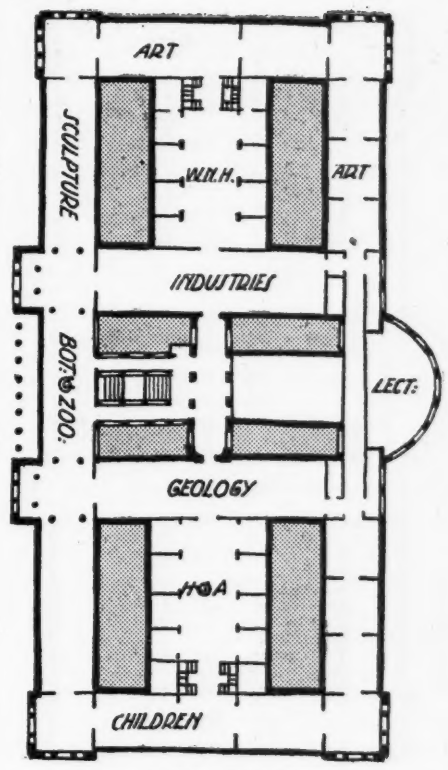


Mr. T. Davison.

Most of the competitors have endeavoured to put the reserves in close proximity to the corresponding Public Galleries, and such a course is an eminently reasonable one, provided it can be combined with the necessary separation of the public and the students; few have succeeded in so doing, and in this respect those who have allotted the upper floor to the Public Galleries and the lower to the reserves may claim many advantages for their method. The winning design groups the public portion inside and rings it round with the reserves; many others are more or less on these lines, while some competitors provide the separate section referred to as possible in the instructions.

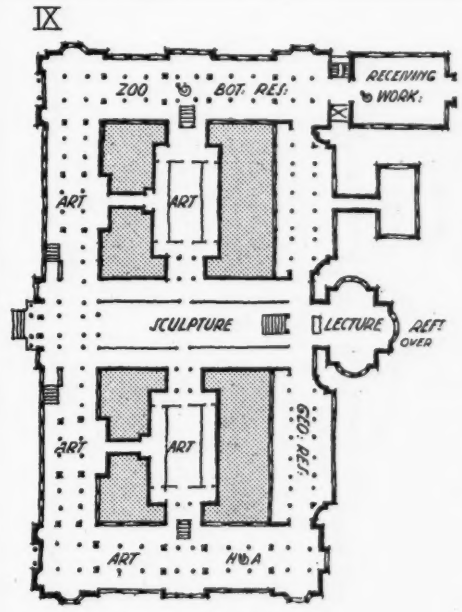
We should like it to be understood that the designs which we have illustrated are not selected as necessarily the most meritorious, but as those most likely to assist the student of planning in estimating the importance of the influences governing the preparation of a scheme. One of the chief difficulties in the competition system as practised at present lies in the wide divergence of view in the profession as to the relative values of all the various factors which have to be balanced one against another.

VIII



Messrs. Wills & Anderson.

IX



Mr. S. K. Greenslade.

IMPROVEMENTS AT THE CITY GUILDHALL.—Work has been begun on the rebuilding of the east wing of the ancient front of the Guildhall, the original structure having been removed many years ago in order to improve the approach to the Guildhall Library. The scheme, which is now being carried into effect, embodies also other improvements; the museum and the historic crypt will be connected, while the unsightly gas-cooking apparatus now in the crypt will be removed. The accommodation for the culinary requirements on Lord Mayor's Day will be provided in the three-story addition, which will be raised in the shape of the east wing. The new wing will be modelled precisely on the lines of the west wing, and the effect will be to restore the front exactly to the state in which it was when completed by Dance in 1788. The cost of the new work will be 3,800*l*. The alterations and improvements have been designed by the City Surveyor, Mr. Sidney Perks, and the work is being carried out by Messrs. Johnson & Co., Wandsworth Common.

APRIL 9, 1910.

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MEETINGS.

FRIDAY, APRIL 8.

Institution of Civil Engineers (Students' Meeting).—Mr. G. H. Hodgson and Mr. H. M. Gell on "The Reconstruction and Extension of Egremont Ferry Pier." 8 p.m.

The Royal Sanitary Institute.—Provincial sessional meeting, Plymouth, in the Western Law Courts, Guildhall. A discussion will take place on "The Removal of Town Filth," to be opened by Mr. J. Paton, Borough Engineer and Surveyor, and "The Relative Value of Disinfectants in the Control of Diseases," to be opened by Dr. O. Hall, D.P.H., M.O.H., Devonport. 7.30 p.m.

SATURDAY, APRIL 9.

The Royal Sanitary Institute.—Provincial sessional meeting, Plymouth (continued).

Edinburgh Architectural Association.—Visit to the new markets and slaughter-houses, Gorgie.

Royal Institution.—Mr. W. W. Starmer on "Bells, Carillons, and Chimes"—I. 3 p.m.

MONDAY, APRIL 11.

The Surveyors' Institution.—8 p.m.

The Incorporated Clerks of Works' Association (Carpenters' Hall, London-wall).—Second portion of paper by Mr. Walter Jennings, "Comments on the Public Health Acts. The Model By-laws of the Local Government Board and the Drainage By-laws of the London County Council and Provincial Boards of Health." 8 p.m.

Royal Society of Arts (Cantor Lecture).—Mr. Alfred B. Searle, Ph.D., on "Modern Methods of Brick-making"—I. 8 p.m.

TUESDAY, APRIL 12.

Junior Institution of Engineers (the Royal United Service Institution, Whitehall).—Paper on "High Speed Steam Turbine Rotor Design and Construction," by Mr. J. M. Newton, B.Sc. 7.30 p.m.

Institution of Civil Engineers.—Papers to be discussed—(1) "The New Clyde Bridge of the Caledonian Railway at Glasgow," by Mr. D. A. Matheson; (2) "The Queen Alexandra Bridge over the River Wear, Sunderland," by Mr. F. C. Buscarlet and Mr. Adam Hunter, M.Inst.C.E. 8 p.m.

WEDNESDAY, APRIL 13.

Edinburgh Architectural Association.—Annual business meeting and President's valedictory address. 8 p.m.

Royal Society of Arts.—Mr. A. T. Walmisley, M.Inst.C.E., on "The Port of Dover." 8 p.m.

Institution of Civil Engineers.—Students' visit to the Kempton Park Filter Beds and Pumping Station of the Metropolitan Water Board.

THURSDAY, APRIL 14.

Society of Architects.—Mr. S. Bylander on "Constructional Steelwork." Illustrated by lantern slides. 8 p.m.

FRIDAY, APRIL 15.

Society of Architects.—Twenty-sixth annual dinner, Holborn Restaurant, W.C. 6.30 p.m.

SATURDAY, APRIL 16.

Royal Institution.—Mr. W. W. Starmer on "Bells, Carillons, and Chimes"—II. 3 p.m.

COSTUME IN THE BALKAN STATES.

AFTER Mr. Hubbard's lecture at the R.I.B.A. on Monday he exhibited a most interesting collection of costume from the Balkan provinces. Its value from the designer's point of view lay in the fact that the elaborate embroidery and ornaments with which the dresses are decorated display an unbroken tradition from the Byzantine times. Here and there in Europe the student may find remnants of traditional design in costume, pottery, and other technic arts, but usually fragmentary or degraded. In this case the designs seem to have been handed down with but little deterioration, and, with the exception of a few displaying Renaissance influence, to show the purity of style and balance of composition such as we are accustomed to recognise in the best Byzantine ornament. This may, to some extent, be due to the interest these races take in dress as a national art, to the absence of machine work, and to the suitability of the climate for the display of bright colours and sparkling ornament.

It is to be hoped that it will be long before the more sober style of dress that has spread over almost all western countries will find its way into the remote recesses of the Balkan Mountains, and deprive these provinces of one of their most interesting features.

The designs of the costumes from Montenegro are essentially traditional, and they have a striking Byzantine appearance. A small zouave jacket was entirely covered with gold braid, which showed the full force and spirit of the acanthus leaf. A woman's costume from Herzegovina had black woollen embroidery on coarse homespun linen, but the design of the embroidery was particularly striking.

The finest needlework of all appeared to be in the embroideries from the Canali Valley. The cuffs and collars, of which there were several examples, were worked in gorgeous silks having a richness of effect, like the medley of colour of azalea blossoms.

One Montenegrin bridal jacket was worked with heavy pure gold thread, enriched with gold tassels and small corals. The sleeves of this jacket were not intended to be worn over the arms, for they hung back over the shoulders. The armholes of the jacket are quite distinct from the sleeves.

One curious feature in connexion with these costumes was that they are worn by all the people exclusive of any class. Changing fashions in the wearing apparel are unknown, and generation after generation wear costumes having precisely the same designs. As an example of this, Mr. Hubbard pointed out that the Montenegrin form of cap worn by the Prince is also worn by every one of his subjects, and this cap has been worn for over 500 years. It is a pork-pie shaped hat, with black upright sides and a red field at the top; a portion of the red field is cut off by a crescent of gold braid, in which the initials of the ruling Prince are worked in gold letters.

The tradition of the cap appears to be that the black braid represents the mourning after the great battle of Kossovo in the XVth century, when the Turks overran the Slavonic States. The red field at the top represents the bloody battlefield, and the portion contained within the gold crescent represents that portion of the Slavonic States, namely, Montenegro, which alone maintained its independence. This is indicated by the fact that the Prince's initial is embroidered in gold within it.

Mr. Hubbard also exhibited a considerable quantity of silver and gold jewellery from the Balkan States. All was of fine design in filigree work.

A woman's belt from Montenegro was an amazing piece of work. It must have weighed many pounds, and was considered by many to be like a horse trapping. The front portion was encrusted with three rows of great oval carnelians about 1 in. in diameter set in silver gilt mountings; the back portion was covered with engraved and pierced brass panels, and the whole was lined with several thicknesses of cowhide.

The Dalmatian coats, which were hung around the walls, gave a striking effect of colour, the ground in some cases being in red and in others blue. Sometimes the design was entirely in gold and sometimes in silks in various colours. These designs were not restricted simply to the trimmings, but in one case the whole of the back was covered with archaic foliated designs.

The leather shoes, or "opankas," are made of rough cowhide; sometimes the hair is still left on the outside soles of the shoes, the upper surface being entirely composed of thongs of plaited leather dyed in various colours.

Mr. T. G. Jackson also had kindly lent a few costumes which he had brought back from the Balkan States, amongst which a woman's jacket was a striking feature.

Archæological Societies.

NEWCASTLE SOCIETY OF ANTIQUARIES.

At a meeting of the Newcastle Society of Antiquaries, held on the 30th ult., in the Old Castle, Mr. F. Gerald Simpson contributed a paper containing a report on the Roman watermill at Haltwhistle burn head. He said the report was a joint report of Mr. Gibson and himself. They had called the mill a Roman watermill. That was a somewhat bold statement, though he hoped it was not a foolhardy one; because a Roman watermill had never yet been discovered in this country, and it had never been definitely ascertained that any mill was of Roman date. It was rather difficult to suggest that the mill was a Roman mill, unless there was some fairly good evidence to back it. He described how the mill was discovered, saying that in 1907 they were tracing the military way, and, in cutting trenches, came upon what was supposed to be the east abutment of a bridge. But, on excavating, they found it was something like a square building, with a wall on the land side; and they had to give some other explanation. The stones were all typically Roman, and none appeared to have been re-used stones. Among the stones were found several pieces of large millstones, in one case the pieces forming a complete mill. These were far too heavy for anything but a power mill, and, in addition, there were eight handmills. Many pieces of pottery were found. There was no doubt that the place had been a mill. It would be necessary to dam the river, in order that the water might be had for the mill-stream; and it seemed likely that at the foot of the existing weir, damming the stream for sheep-washing, were some of the old whin stones placed there by the Romans. In the middle of the building they found a coin, which was much corroded, and appeared to have been much worn before it was lost. It was a coin either of Hadrian or one of the early emperors. Nothing was found which was not Roman. The discovery of mortaria seemed to put the date in the third century.

Mr. Simpson was cordially thanked for his report.

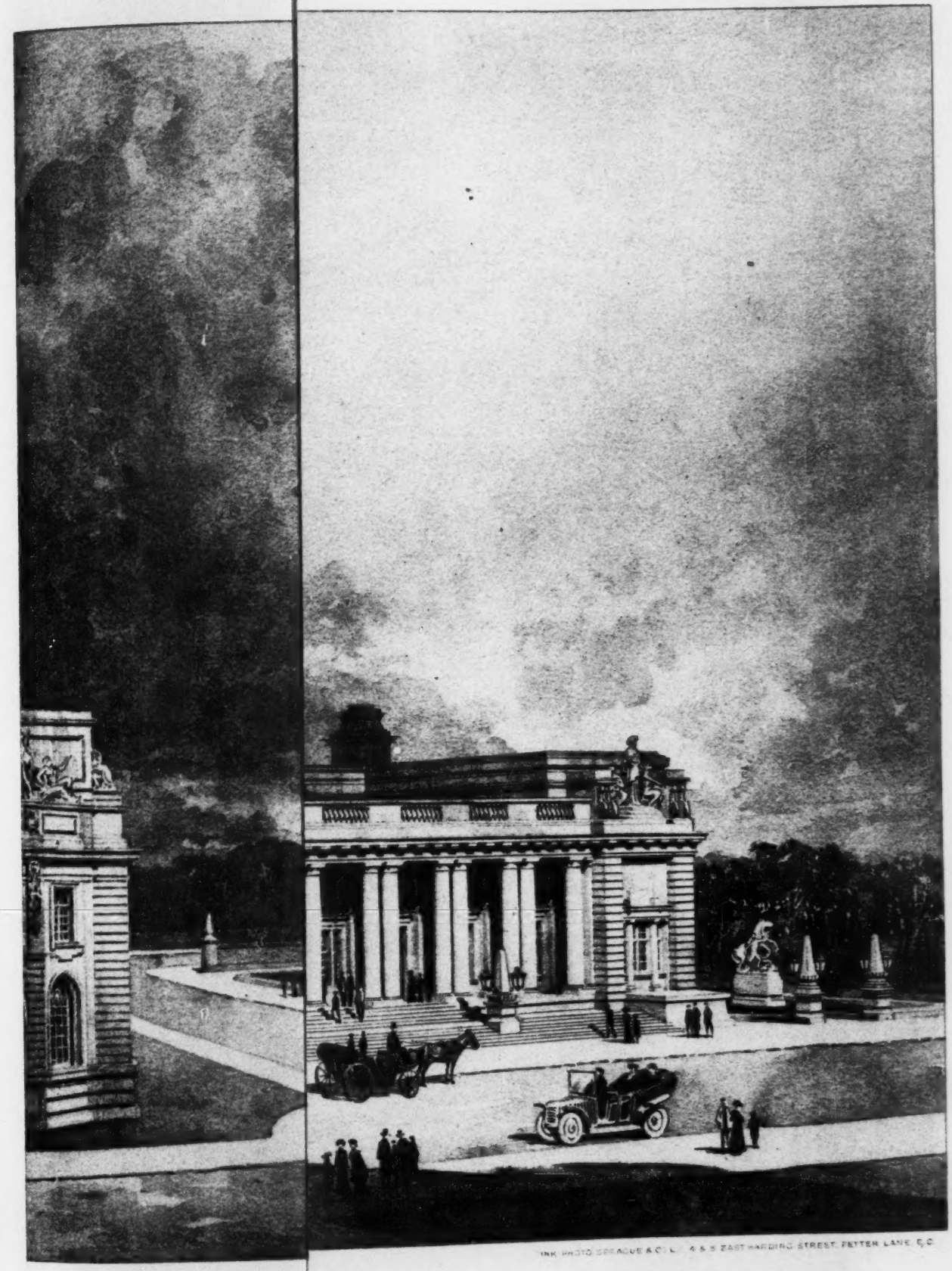
Illustrations.

THE NATIONAL MUSEUM OF WALES, CARDIFF:

MR. HARE'S DESIGN.

WE take the following from the report submitted by Mr H. T. Hare:—

The plan has been arranged on simple and symmetrical lines, the main entrance being on the southern and most important front, with secondary entrances on the east and west fronts. The southern front has been designed to be of approximately equal mass with that of the Law Courts block, and the main horizontal lines of the adjoining building have been adhered to. The building being a national one, the author has considered it desirable to mark its importance



INK PHOTO GRAGUE & CO. LTD. 455 EAST HARDING STREET, FETTER LANE, E.C.

B.A.

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brass panels, and the whole was lined with several thicknesses of cowhide.

The Dalmatian coats, which were hung around the walls, gave a striking effect of colour, the ground in some cases being in red and in others blue. Sometimes the design was entirely in gold and sometimes in silks in various colours. These designs were not restricted simply to the trimmings, but in one case the whole of the back was covered with archaic foliated designs.

The leather shoes, or "opankas," are made of rough cowhide; sometimes the hair is still left on the outside soles of the shoes, the upper surface being entirely composed of thongs of plaited leather dyed in various colours.

Mr. T. G. Jackson also had kindly lent a few costumes which he had brought back from the Balkan States, amongst which a woman's jacket was a striking feature.

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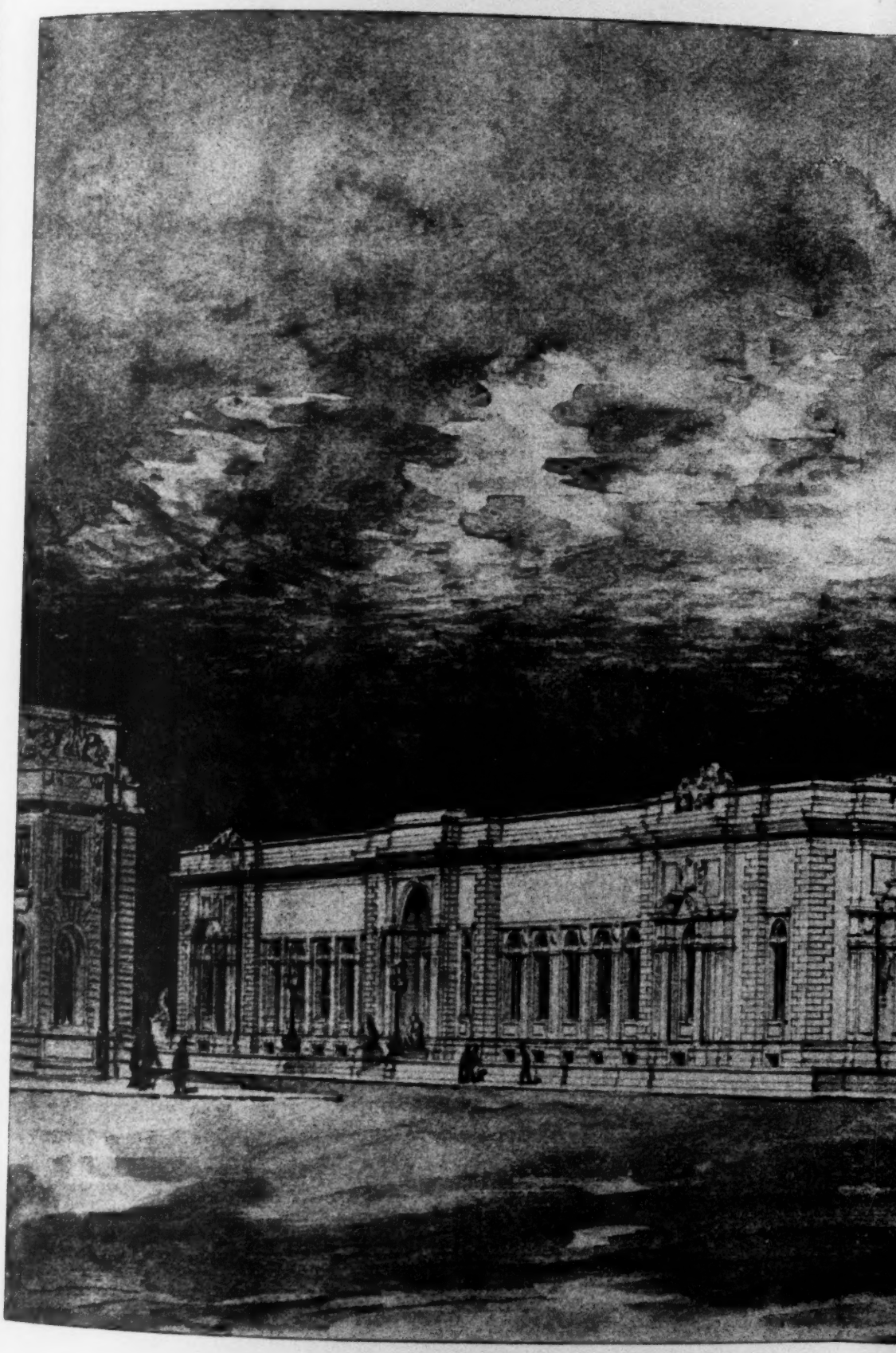
DESIGN PLACED THIRD FO

INK PHOTO ERAGUE & CO. LTD. 4 & 5 EAST HARDING STREET, FETTER LANE, E.C.

LACED THIRD FOR NATIONAL MUSEUM, CARDIFF.—By Mr. Henry T. Hare. F.R.I.B.A.

PERSPECTIVE VIEW.



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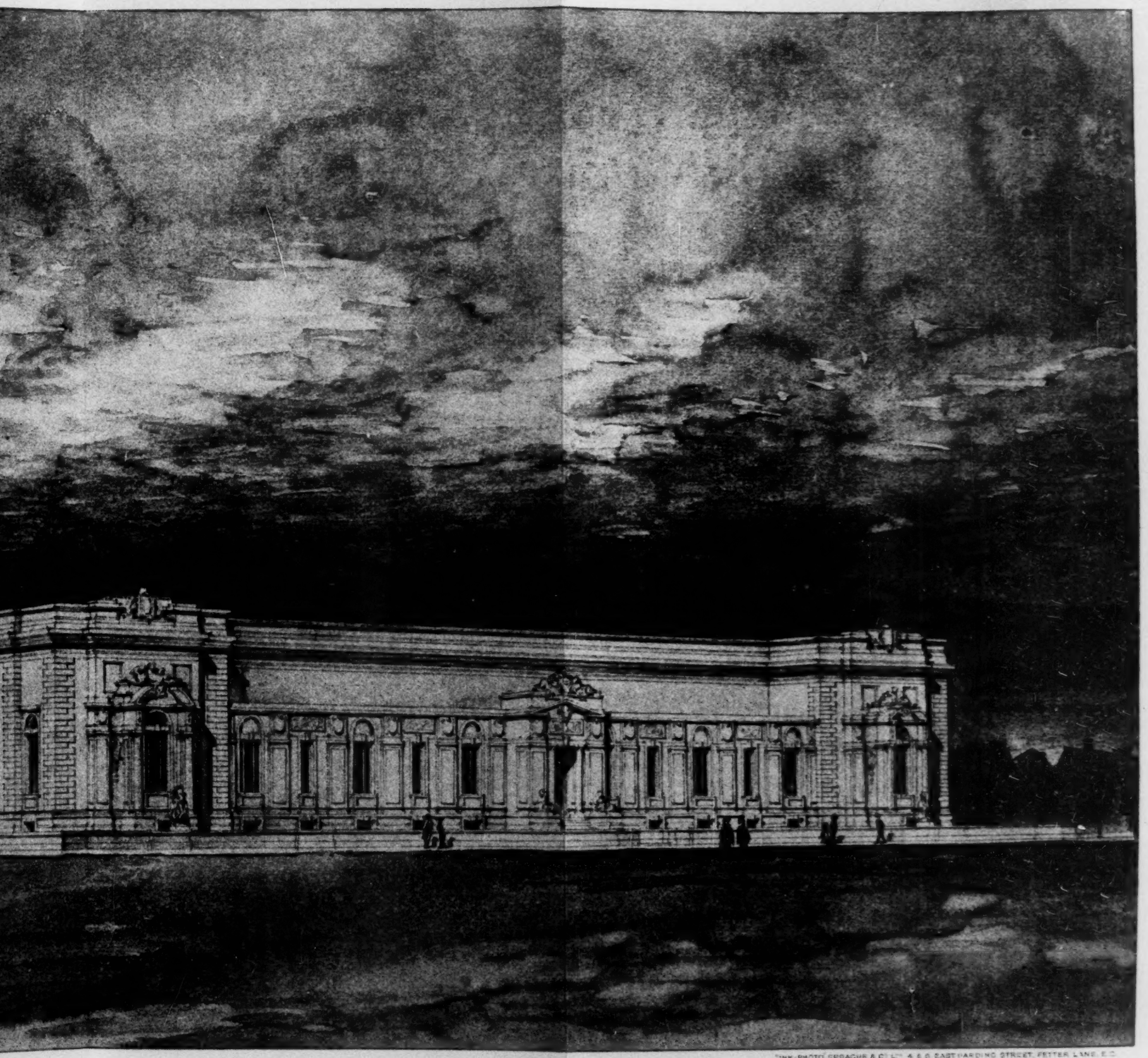
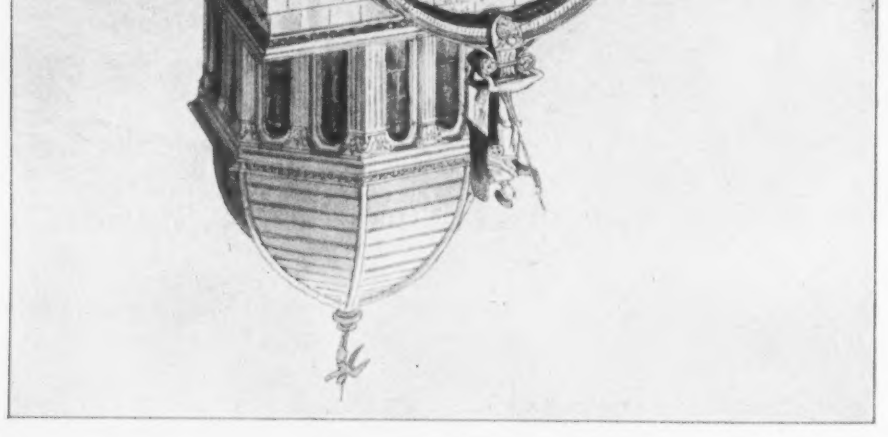


"INK-PHOTO" SPRAGUE & Co. L.TD. 4 & 5, EASTHARDING STREET, FETTER LANE, E.C.

FOURTH FOR NATIONAL MUSEUM, CARDIFF.—By Messrs. David Milne & J. William Hepburn.

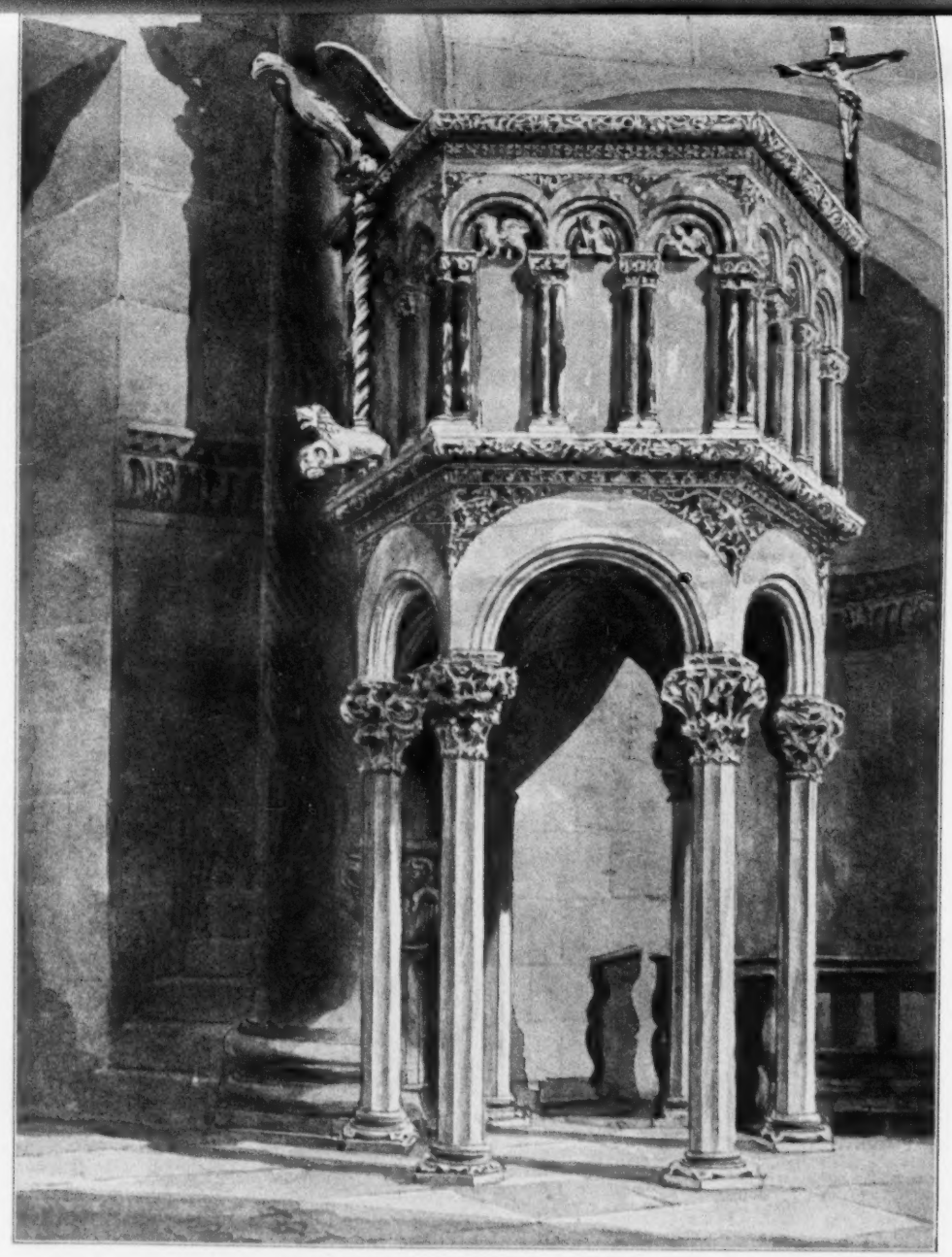
PERSPECTIVE VIEW.

PARENZO.—APSE AND CIBORIO.



SEBENICO, NORTH SIDE OF DUOMO.

TRAÜ.—WEST DOORWAY OF DUOMO.



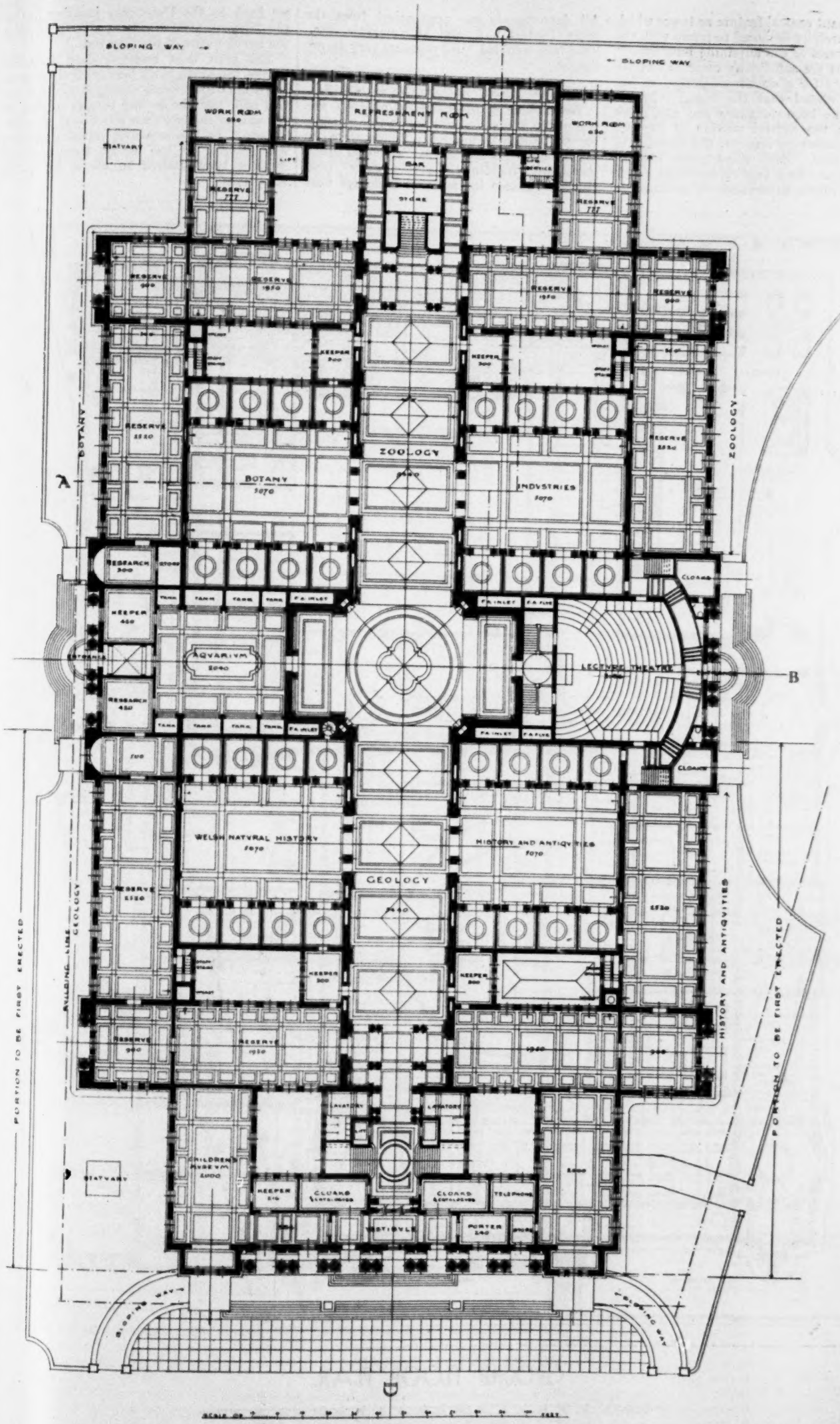
DUOMO OF SPALATO.—THE PULPIT.

SKETCHES IN DALMATIA BY MR. T. G. JACKSON, R.A

(ILLUSTRATING MR. GEORGE HUBBARD'S PAPER).

Sprague & Co., Ltd., Printers, 4 & 5 East Harding St., E.C.

APR



GROUND PLAN.

Welsh National Museum. Design by Mr. H. T. Hare.

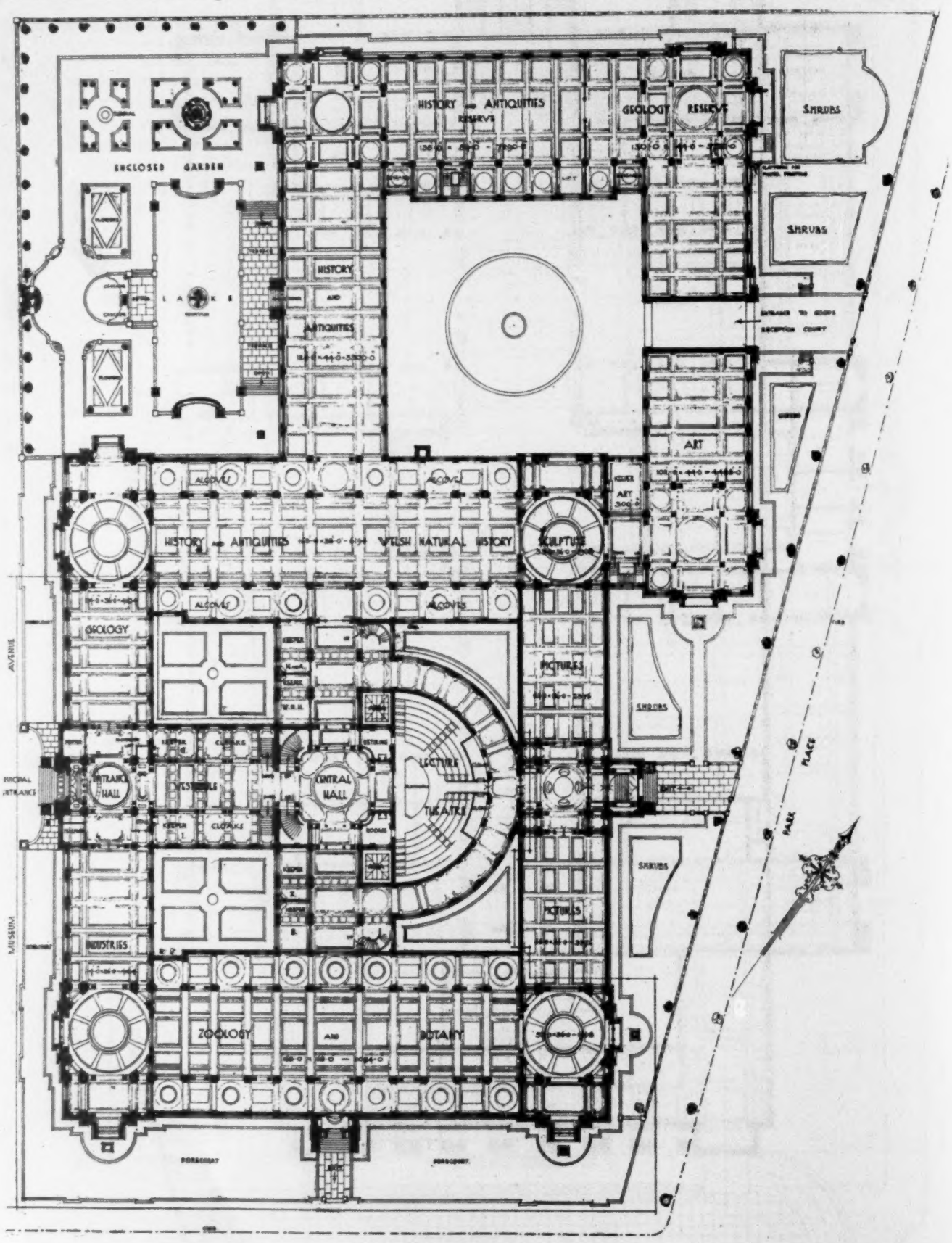
by a dominant central feature or tower which has been carefully designed to group with the salient features of the adjoining buildings.

The plans are sufficiently clear to obviate the necessity for a detailed description, but it may be stated that the broad principle followed has been to place the exhibition galleries in the central portion of the site with the reserve galleries on the frontage or outer portions. Each department has, as far as possible, been kept on one level, and is under the direct supervision of its curator. All departments are approached from the great central hall, and all corridors, etc., have been avoided. All parts are very amply lighted.

MESSRS. MILNE & HEPBURN'S DESIGN.

THE outline of the buildings on plan was one of the first considerations in this scheme, for the authors deemed it imperative to preserve the Square around which so many important buildings have already been erected. Hence the museum buildings were set back to the University building line on the Museum-avenue side at a point opposite the north corner of the City Hall.

The plan then resolved itself into two blocks, the south block being entirely devoted to public departments arranged round a central hall, and the lecture theatre placed on the axis of the entrance which is in Museum-avenue. By this means an imposing entrance was secured for the lecture theatre should it have been desired to use it for public receptions.



GROUND FLOOR PLAN.

Welsh National Museum. *Design by Messrs. David Milne & J. William Hepburn.*

In the public departments the greatest concentration was aimed at, and the floor kept as near the street level as practicable to give a good basement.

The offices and board-room, library and small lecture-room form the first floor over a portion of this main block.

The reserve collections are housed in an annexe to the north in buildings of two stories grouped around a spacious reception court.

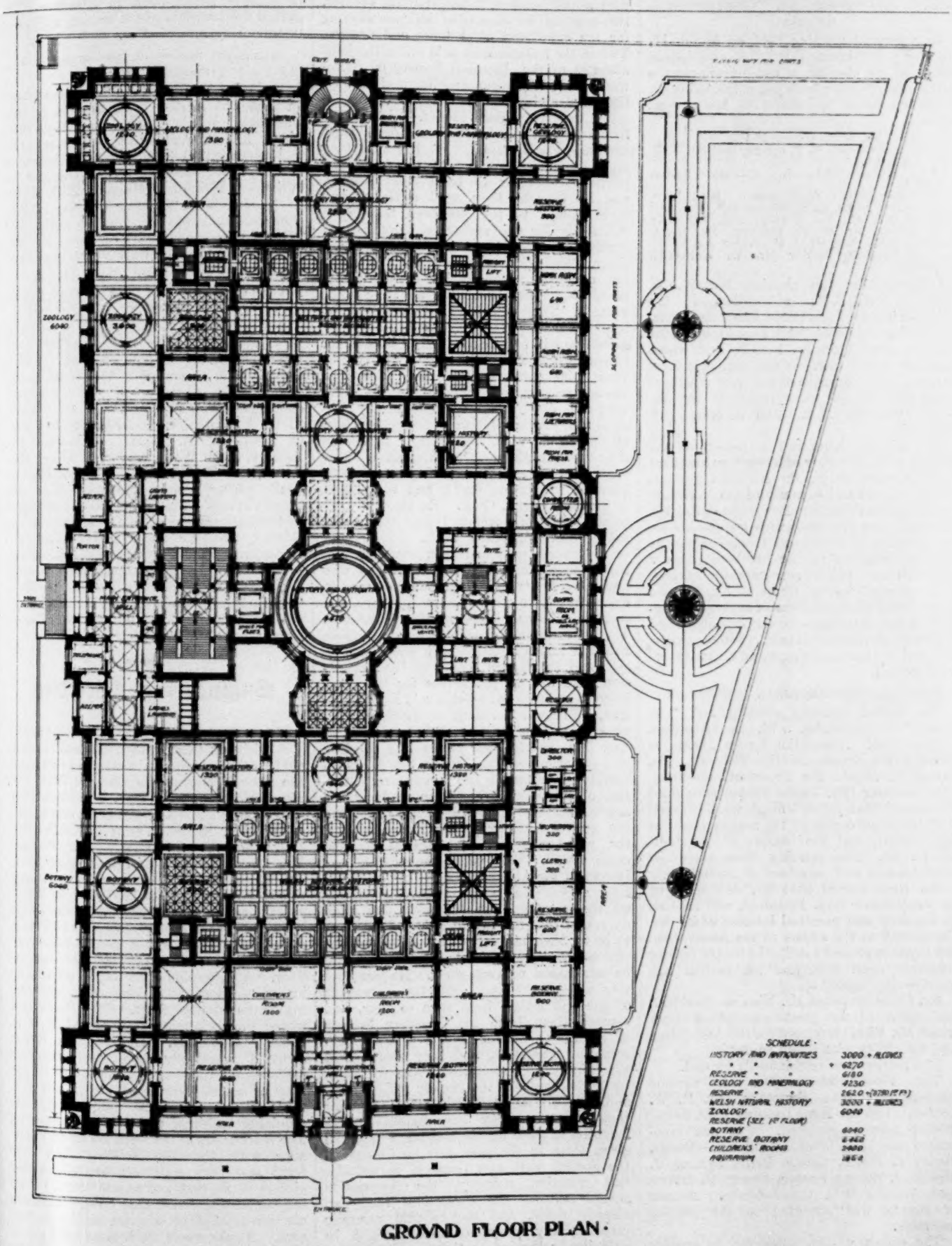
The treatment of the elevations was purposely quiet, so as not to detract from the predominance of the City Hall as the central feature of a group.

D. MILNE & J. W. HEPBURN.

SKETCHES IN DALMATIA.

THESE were selected from the very interesting collection of drawings by Mr. Jackson exhibited at the Royal Institute of British Architects last Monday. They were chosen as illustrating buildings to which Mr. Hubbard gave especial prominence in his paper as representative of the best types of work of different periods in the history of Dalmatia. The view of interior of the cathedral at Parenzo may enable our readers to share Mr. Hubbard's enthusiasm as to the mosaics of the apse, and the sketch of that at Sebenico will be explanatory of his remarks on its honesty of construction.

The doorway at Traü is one of the most



GROVND FLOOR PLAN·

SCALE OF 0 5 10 20 30 40 50 60 70 80 90 100 FEET

Welsh National Museum. ***Design by Mr. T. L. Vesper.***

The design awarded Second Premium. Particulars will be published with the Perspective View in our next issue.

perfect and beautiful examples of mediæval architecture in Dalmatia.

The XIIIth century pulpit at Spalato is a superlatively fine specimen of Romanesque work. It is made of compact limestone and variously coloured marbles, and the detail is rich in the symbolism which takes such a large place in the architecture of that period.

Architectural Societies.

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.

At a general meeting held on March 17, Mr. Percy Robinson, F.R.I.B.A., occupying the chair, the election of the officers for the forthcoming Session took place, the following gentlemen being appointed to the several offices :—

President—Mr. S. D. Kitson, M.A.
Vice-Presidents—Mr. R. P. Oglesby and Mr. A. E. Kirk, A.R.I.B.A.
Hon. Treasurer—Mr. R. Fielding Farrar, A.R.I.B.A.
Hon. Librarian—Mr. Fredk. Musto, A.R.I.B.A.
Hon. Secretary—Mr. R. W. Thorp, A.R.I.B.A.
Council—Mr. C. B. Howdill, A.R.I.B.A., Mr. J. F. Walsh, Mr. G. F. Bowman, Mr. H. A. Chapman, F.R.I.B.A., Mr. J. C. Proctor, A.R.I.B.A., and as Associate Member Mr. W. Whitehead, A.R.I.B.A.

In proposing the election Mr. W. H. Thorp, F.R.I.B.A., acknowledged the Society's indebtedness to Mr. Percy Robinson, the retiring President, who, he said, had done yeoman service on its behalf, and whose untiring efforts towards the furtherance of its aims were appreciated by every member; sentiments which were endorsed by Mr. H. S. Chorley, M.A., who seconded the proposal.

Mr. Kitson then read a paper on the life and work of "Carr of York," an architect who flourished during the XVIIIth century, and to whose hand so many of the Yorkshire Georgian mansions owe their stolid simplicity. He is perhaps best known as responsible for the erection of Harewood House, where he came in contact with the brothers Adam, a circumstance which considerably affected his subsequent work. Commencing life as a mason, with the traditions of several generations of mason forbears, he was one of the last links with the mediæval past, when the craftsman had so great an influence on architectural development.

ABERDEEN ARCHITECTURAL ASSOCIATION.

The annual business meeting and "At Home" in connexion with the Aberdeen Architectural Association were held in Kennaway's Rooms on the 29th ult., Mr. James B. Nicol, the President, presiding. The treasurer (Mr. James Blake) submitted the annual financial statement, which showed that the membership of the society stood at eighty-eight, and the balance at its credit 2*l.* 7*s.* 3*d.* The meeting then appointed office-bearers and members of committee.

Mr. Nicol moved that Mr. Arthur Clyne be reappointed Hon. President, and referred to the deep and practical interest which Mr. Clyne took in the affairs of the Association. Mr. Clyne expressed his thanks for the honour conferred upon him, and the motion was unanimously agreed to.

Mr. Clyne proposed Mr. Nicol as President, and spoke of the great amount of work which Mr. Nicol performed for the Association and the ability with which he did it.

The motion was unanimously carried.

The Vice-President (Mr. R. Connon Garden), the Hon. Secretary (Mr. R. W. Gibbon), and the Hon. Treasurer (Mr. James Blake) were reappointed. The new committee was appointed as follows :—Messrs. Henry F. David, George Beith, Sydney H. Brown, J. Murray Easton, George G. Irvine, and Andrew M'D. Cruickshanks. A vote of thanks was accorded to the retiring members.

The company then adjourned to another room, where the "At Home" was held.

Mr. Nicol submitted the Report of the Committee for the past year. That evening they completed their fifth year as an Association, and the record had been one of steady and uninterrupted progress. Last general meeting they had to record the number of members at seventy-six. This year they had to note a still further increase of twelve, which, on considering the small amount of work in the various architectural offices in town, was, he thought, very satisfactory and should incite them to still further efforts for promoting the work of the Association. The work of the year, as outlined in the syllabus, had been closely adhered to. As they would recollect, it comprised six lectures, two meetings for discussion, and one meeting for the exhibition of sketches and designs. Two of the lectures were held under the joint auspices of the Aberdeen Society of Architects and the Aberdeen Architectural Association, and at both of the lectures the attendances were very good indeed. The Report then went into detail as to the various lectures and subjects discussed. He felt sure they must all agree that the joint lectures had proved themselves to be a great success, and he thought they must again express their thanks to the Aberdeen Society of Architects for the assistance they had so generously given them for the past three years. Their only regret was that there was not a larger representation of the senior members of the profession at these joint lectures. They were most grateful for the help the Society had given them, but they should be still further encouraged by a larger attendance of the architects of the city at these joint lectures. The other lectures in the course were very useful and were largely attended and much appreciated by the members. An exhibition of designs was held on March 5, when the designs submitted showed considerable originality. Two excursions were held early in the summer, the first to Crathes Castle and the second to Harthill Castle, Oyne. He thought they might fairly congratulate themselves on the success of their year's work. The quality of the papers read had been excellent, and their sincere thanks were due to all those who had taken the trouble to prepare and read to them the papers at the various meetings, and to those who had joined in the discussions. The sub-committee appointed for the purpose had now issued a sketch-book which was on sale, and the sincere thanks of the Association were due to Mr. Irvine for the great interest and care he had shown in its preparation. Before concluding he should like to refer to another matter which from time to time had been in their minds—the question of a closer connexion between the Aberdeen Society of Architects and themselves. Mention of this subject had been made at the annual meetings of the past three years, but the subject had always disappeared during the year until the next annual meeting came round. This year, however, in the Report of the Aberdeen Society of Architects there appeared a paragraph bearing directly on the question, and the hope was there expressed that the two societies might see it to be for their mutual advantage to consider whether a more intimate connexion could be established between them. He was sure they appreciated most highly the expressions of goodwill which, from time to time, had reached them from the Aberdeen Society of Architects by the mouth of its much-respected President, and they also valued exceedingly the assistance rendered them by the members of the Society individually, and the help so generously given them for their lectures. They were indeed greatly indebted to them for the assistance they had given them in the past, and he thought if the Society were now prepared to consider this question seriously, the Association should welcome the suggestions they had already made, and they should carefully consider any proposals which might be submitted whereby a satisfactory settlement might be reached in the near future. There were, of course, difficulties in the way from the standpoint of the Society and of the Association, but he was confident that if the matter was approached in a broad-minded spirit by both parties arrangements could be arrived at which would ultimately be of advantage to both bodies, and which should be of great advantage to those they were all trying to help—the architectural students of Aberdeen.

Mr. George G. Irvine made a few remarks as to the sketch-book of the Association, which, he said, was one of the finest productions north of Edinburgh or Glasgow, and it was a matter for great satisfaction that there should be such a sketch-book in Aberdeen. He moved the adoption of the Report, which was unanimously approved of.

GLASGOW INSTITUTE OF ARCHITECTS (ASSOCIATE SECTION).

The annual general meeting of the Glasgow Institute of Architects (Associate Section) was held in the rooms on Wednesday, March 27. A satisfactory Report was read and approved, and the following Committee was elected :—Messrs. A. M. Gardner, A. Wright, J. Wright, H. Higgans, E. G. Wyllie, T. Lunan, J. A. Wilson, Alex Davie, Wm. Vickers, jun., and A. Newton. Mr. Alex Wright was appointed Chairman, and Mr. J. Arch Wilson, 92, Bath-street, was again elected Hon. Secretary.

ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.

An ordinary meeting of the Council of this body was held on Monday at 31, South Frederick-street, Dublin, Mr. R. Caufeild Orpen, B.A., occupying the chair in the unavoidable absence of the President. Amongst the members present were Messrs. C. H. Ashworth, L. O'Callaghan, F. Hayes, G. Sheridan, A. Millar, G. Beckett, H. Alberry, J. H. Webb, and C. A. Owen, Hon Secretary. The correspondence having been dealt with, a communication from the Stone Carvers' Trade Association with regard to the encouragement of the trade was considered, and the Council expressed themselves generally in favour of the Association's proposals. The amalgamation of the Architectural Association and the Institute was further discussed, and a proposal to erect a memorial to the late Sir Thomas Drew was considered.

Engineering Societies.

THE JUNIOR INSTITUTION OF ENGINEERS.

A visit of this Institution was recently paid to the building in course of erection for the Royal Automobile Club in Pall Mall. The architects are Messrs. Mewes & Davis and Keynes Purchase, and the work is being executed by Messrs. Waring & White (1906), Ltd. Mr. S. Bylander, their engineer, Mr. B. Tarring, superintending engineer, and Mr. D. F. Alden conducted the members round. The length of the front is 228 ft., and the average depth 242 ft. There are two stories below the ground floor, and five stories above, in addition to the ground-floor story, making eight stories in all above the basement floor. A swimming-bath will be constructed in the basement, 86 ft. long, 30 ft. wide, and maximum depth 8 ft. The foundations under the swimming-bath are 41 ft. 6 in. below ground floor. The building is constructed practically as a steel frame, all loads being carried on columns up to the first floor or second floor level, except the party walls between the club building and the adjoining building, which is self-supporting. The thicknesses of the walls are all in accordance with the old Building Act. The front and back walls are carried on steel girders at the first and second floors, and are self-supporting above that level. The floors are constructed in concrete reinforced with rods. All the steelwork is cased with at least 2 in. of concrete. The interior partition walls are built with 2½-in. and 4-in. thick pumice concrete blocks. The retaining wall supporting the street at Pall Mall front is constructed in ordinary concrete, and the

retaining wall at the back of the building is in reinforced concrete—the height of this wall is 38 ft. The swimming-bath is also to be constructed in ferro-concrete. Triple web-plate girders 3 ft. deep are placed at second floor level over large rooms to carry part of building above, and two of these girders weigh 24 tons each. The columns are all made of built-up sections of angles and plates. The girders are generally steel-rolled joists, plate girders being used only for special long spans and heavy loads. The distance between the floor beams is generally about 12 ft. The front and back walls are faced with Portland stone, and the elevation to Pall Mall is expected to be one of the most striking in that street. The basement lower ground floor, ground floor, and first floor will be partly ventilated and heated by means of hot air; in addition, the entire building will be heated with hot water radiators. All the drainage above lower ground floor will discharge direct into the sewer through pipes suspended under the lower ground floor. The waste water collected in the lower ground floor and the basement will discharge into the ejector chamber, 40 ft. below the ground floor level, and by means of ejectors the water will be raised to the sewer level. These ejectors will also be used for emptying the swimming-bath. Complete drawings are made of the steelwork, showing all connexions and the position of all rivets. The work is accurately set out in the shops as well as on the site to facilitate quick erection.

THE SOCIETY OF ENGINEERS (INCORPORATED).

The following is an abstract of a paper on "Moulmein Waterworks," by Mr. Percy G. Scott, A.M.Inst.C.E., read at the last meeting of this Society:—In describing the waterworks of Moulmein, one of the principal ports of Burma, the author introduced the subject with a brief history of five schemes which were discussed during fifteen years prior to the construction of the works as they now exist. These schemes were carefully examined, and of the five, that suggested by the Moulmein Municipality was further considered, and the Taungwaing Valley examined, but the levels showed that a gravitation scheme was impracticable. At the beginning of 1898 Mr. E. G. Foy, Sanitary Engineer to the Burma Government, was deputed to look into the Moulmein Water Supply scheme. Mr. Foy examined the Taungzun hills and the Mayabyan Valley, and prepared a scheme known as the Mayabyan Valley gravitation scheme. This was reported upon by a committee of engineers, and the works were constructed according to Mr. Foy's design, with slight modifications suggested by the Committee referred to above. Under the heading of "Survey Operations," the author gave a brief description of the traverse survey of the ridge of the Taungzun hill and the contouring of the bed of the reservoir, the cost of the survey being about Rs.3,100, or 207*l.* An analysis of some samples of water from the Mayabyan Valley was also given. The size of the catchment area is 400 acres, the average rainfall for fourteen years (from 1884 to 1897) being 185·36 in., and for forty-four years (from 1850 to 1893) 187·7 in., the minimum rainfall recorded being 124·24 in. The average periods of wet and dry seasons, as deduced from the rainfall statistics, are 145 days and 220 days respectively, the quantity of water required to be stored for the wet and dry seasons respectively being 209 and 317 million gallons. From the data given above the Moulmein Reservoir was calculated to hold 648 million gallons, which is more than sufficient to supply the town of Moulmein, allowing 24 gallons per head per day for a population of 60,000 people. Under "Headworks" a brief description was given of the dam, the outlet sluice, and the escape weir. The dam is an earthen embankment about 3,750 ft. long and 68 ft. at its greatest depth, the top width being 15 ft., with side slopes of 3 to 1 on the rear side and 2 to 1 on the water side. The dam was made of ordinary and selected earth, with a puddle well and trench. The outlet sluice and tunnel, with their pipes and fittings and the waste weir, were described in detail. The service cisterns are three in number, each having a capacity of over 600,000 gallons, or more than sufficient for a mean supply of ten hours for a population of 60,000 people. The distribution system consists of a cast-iron delivery main 3 miles in length and 16 in. diameter, with cast-iron submains from 12 in. to 3 in. in diameter. All pipes below 3 in. in diameter are of galvanised wrought-iron. Loans were obtained as follows for the construction of the works: Public loan, Rs.936,000 = 62,400*l.* at 5 per cent. for thirty years. Government loan, Rs.106,000 = 7,067*l.* at 4 per cent. for twenty years. The cost of the work amounted to 68,722*l.*, certain further expenditure being incurred later for fencing and a light communication bridge between the dam and outlet sluice well. The works were executed by the Public Works Department, Mr. F. C. Lowis being the Resident Engineer under the general orders of Mr. G. T. Oliver (now Superintending Engineer), the then Executive Engineer of the Moulmein Division. The works, which took about two years to complete, were handed over to the Moulmein Municipality about the latter part of 1905.

Legal Column.

THE LONDON BUILDING ACTS.

ATTENTION may be drawn to a case reported in our "Law Reports" last week. The occupier of a shop was summoned under the Building Acts by the District Surveyor of Newington for the payment of fees in respect of the conversion of the building into a public building, the shop in fact being used as a cinematograph show. The defence appears to have been that as no structural alteration was made in the building the District Surveyor had no jurisdiction. Sect. 79 of the London Building Act, 1894, speaks of "the conversion or alteration" being carried into effect in such manner as may be approved by the District Surveyor, and his jurisdiction under that section does not seem to be confined to cases where structural alteration is necessary. The matter is made clearer in the London Building Acts Amendment Act, 1905, which relates to the means of escape in case of fire, as in sect. 13 it is enacted that no person shall, without the consent in writing of the Council, convert a building in such a manner that such building when converted will not be in conformity with the provisions of that Act, and in this section the above point is directly met, for the section proceeds, "For the purposes of this section the expression 'convert' shall include any change of user whether involving any structural alteration or not, and notice of such conversion shall be given to the District Surveyor." In the case under discussion it is not clear that any provision of the Act of 1905 was infringed, but the magistrate applied the same meaning to sect. 79 of the Act of 1894. It would have been as well had a similar definition been given to sect. 79 of the Act of 1894, as this amplification of the amending Act has probably led to the contention raised in this case. The building in this case was converted into a cinematograph show in the years 1908-9, and before the Cinematograph Act was passed, but the facts disclosed in the case show the necessity of the Cinematograph Act which came into force on January 1 last.

LEASES OF RECTORY HOUSES.

Some interesting points in connexion with the letting of rectory houses came before a judge of the Chancery Division in the recent case of Rickard *v.* Graham. The defendant was rector of a parish, who, having obtained leave from the Bishop to reside elsewhere, and the curate in charge being provided with a residence, leased the rectory to the plaintiff from August 14, 1908, for so long a time as the defendant should continue to be rector. The lease contained a covenant that the defendant should repair and maintain the roof and the drainage. The plaintiff entered into possession in August, but vacated the premises in January following on the ground that owing to the defendant's delay in executing necessary repairs the house was uninhabitable, leakage from the roof having caused the drawing-room ceiling to fall, and endangering those of other rooms. He gave notice in February to determine the tenancy in the following August on the ground that the lease was absolutely void under sect. 59 of 1 & 2 Vic. c. 106, which provides that all agreements for letting rectory houses shall be null and void unless expressed in writing and containing a condition for avoiding the same upon an order being made by the Bishop that the rector shall resume occupation. The plaintiff based his contention on the omission of this condition in the lease, and he contended he was entitled to treat the letting as one for a year. As, however, under the above statute even a yearly tenancy would have to be expressed by agreement in writing, the real question was whether or not the lease was void. The defendant said the repairs had been effected as soon as his attention was called to the necessity, and he counterclaimed for arrears of rent due under the lease. Without entering into the legal complexities involved in the case, it is sufficient to say that since the section also provides that a person in possession either under a verbal agreement or under an agreement in which the above condition has not been inserted shall be entitled to sue for damages if turned out of possession, the judge held the lease not to be void unless the Bishop has required the rector to resume residence. The lease being therefore valid, the Court proceeded to consider the question of damages. Owing to delay in effecting the repairs, the plaintiff was held to have sustained some damage from breach of covenant, which damages were set off against part of the defendant's counterclaim for rent, and each party had to bear their own costs.

Competition News.

THE USHER HALL, EDINBURGH.

Sir Aston Webb, the assessor in connexion with the adjudication of the plans for the Usher Hall, held a meeting with Lord Provost Brown, Dean of Guild Carter, several town councillors, and the Town Clerk, on the 30th ult., in the City-chambers, at which there were discussed and approved the conditions bearing on the designs' competition for the hall. Sir Aston also inspected the site which has been selected for the hall. The conditions of the competition will be issued almost immediately.

WELSH NATIONAL MUSEUM COMPETITION.

An exhibition of designs submitted in this competition will be held in Bloomsbury Hall, Architects' Technical Bureau, from April 11 to April 16 inclusive. Any competitors having their drawings exhibited, or who may desire to do so, are asked to send in their names to the Secretary, Architects' Technical Bureau, 24 and 25, Hart-street, W.C. The drawings will be returned to London competitors after the exhibition free of charge.

SECONDARY SCHOOL, PETERBOROUGH.

The Education Committee of the Soke of Peterborough have accepted the plans of Mr. Brownrigg, 17, Clifford's Inn, London, for the proposed new County Secondary School for Girls, to be erected on Lincoln-road. The assessor nominated by the President of the Royal Institute of British Architects, Mr. J. W. Simpson, gave his award as follows:—First, Mr. Brownrigg, 17, Clifford's Inn, London; second, Messrs. H. Tanner & Green, 12, Regent-street, London; third, Mr. G. H. V. Gould, 9, Tower-street, Ipswich; fourth, Messrs. Cheers & Smith, Twickenham; fifth, Messrs. Packer & Orewitt, Southport; sixth, Messrs. Russell & Cooper, Gray's Inn-square, London. It was agreed to give the authors of the design

placed second an honorarian of 15*l.*, and also one of 10*l.* to the gentleman placed third. The school, which is to accommodate 300 pupils, is estimated to cost 7,250*l.*, whilst the site cost 2,700*l.*—practically 10,000*l.* in all. No less than 107 sets of drawings were sent in.

SCHOOLS AT ACTON.

At the last meeting of the Acton Education Committee the Works Sub-Committee presented draft conditions, instructions, and particulars for the guidance of architects submitting designs for the Rothschild-road School. The conditions included the following:—"The Committee invite designs from architects who have been in practice at least seven years. The Committee will appoint an assessor to advise them in regard to the designs submitted, and, having considered his report, they will award three premiums to the designs which in their opinion should be placed in the first, second, and third positions, the first premium being 100*l.*, the second 50*l.*, and the third 25*l.*, to be paid upon the production of evidence, satisfactory to the Committee, that the work can be carried out at a cost within 10,000*l.*, including heating and ventilation, etc. The premiums will be awarded by the President of the Royal Institute of British Architects, or some other suitable person agreed upon by the Committee. The Committee desire to employ, and will probably employ, the architect whose design is placed first by them to carry out the work, but they do not bind themselves to do so, or to carry out any design submitted. If the Committee decide to erect the building, the architect employed by them will be paid for his services at the rate of 3½ per cent. on the accepted tender, the amount of any premium which may have been awarded to him being deducted. The Committee will employ a quantity surveyor and a clerk of the works. Competing architects will be disqualified if the conditions and the schedule of accommodation be not strictly adhered to, or if a competitor canvass directly or indirectly any member of the Council or Committee, their officials, or the assessor, or reveal his connexion with the design submitted by him before the Committee have finally awarded the premiums above referred to. No special style of architecture is required, but the arrangement of the school on one floor according to the Staffordshire plan of a 'veranda school,' having one hall only for the two departments, is recommended. The drawings and descriptions are to be delivered to the secretary of the Committee on or before June 15, 1910, and will be adjudicated upon as soon as possible." The schedule of accommodation showed that the classrooms in the mixed school are to accommodate a total of about 460 scholars, six rooms to accommodate sixty each, and two to accommodate fifty each, allowing 10 sq. ft. of floor space to each scholar. The assembly-hall will have a floor space of 1,840 ft. The infants' school will have classrooms to accommodate a total of about 400 scholars, eight rooms to accommodate 50 each, allowing 9 sq. ft. of floor space to each scholar. In regard to the above Mr W. G. Scott, of Bedford-row, W.C., wrote to the effect that he would be inclined to compete but for two conditions. The Committee, should, in his opinion, state, without pledging itself, that it was their *bonâ fide* intention to give the work to the author of the design placed first by the assessor. He further held that the Committee should offer the usual 5 per cent. instead of 3½ per cent. to the successful architect. Mr. E. C. P. Monson wrote expressing the same opinion with regard to the percentage. A third letter was received from Mr. G. L. Clarke, who objected to the condition that the competing architects must have been in practice for seven years.—Mr. Shillaker moved an amendment to the following clause:—"The Committee desire to employ and will probably employ the architect whose design is placed first by them to carry out the work, but they do not bind themselves to do so or to carry out any design submitted." The amendment was to the effect that the Committee should employ the architect whose design was placed first by the assessor. This was opposed on the ground that it would tie the hands of the Committee too much, and the amendment was lost. Mr. Shillaker moved a further amendment to the effect that the school be constructed with ten classrooms, each to accommodate forty-eight children, with a view to restricting the size of the classes, in accordance with the views of the Board of Education. This amendment was also negatived, and the Sub-Committee's report was then adopted.

BOOKS RECEIVED.

CONCRETE-STEEL CONSTRUCTION. By Professor E. Mörsch. Translated by E. P. Goodrich. Pp. 368. (Archibald Constable & Co., Ltd. 21s. net.)

BUTTERWORTH'S WORKMEN'S COMPENSATION CASES. Quarterly Advance Sheets, Vol. III. Edited by Douglas Knocker, Barrister-at-Law. Pp. 112. (Butterworth & Co. 5s. net.)

A HISTORY OF ARCHITECTURE. By Russell Sturgis. (B. T. Batsford.)

Trade Catalogues.

FROM the Lift Fireplace Company, (Manchester) we have received a copy of their catalogue of thirty-two pages, containing illustrations of various adaptations of the "Tippit" fire. The firebrick body extends a few inches below the hearth, and in the well thus formed a loose cast-iron grating nearly flush with the hearth is placed. The front part of the grating is pivoted to the back part, and can be raised and lowered at will. When the first part is raised air is admitted freely under the fire, and more rapid combustion is obtained; ashes can also be removed from the space below the bottom grating by means of an ordinary small shovel. Various combinations of the grate, with surrounds of metal and briquettes, and a number of mantelpiece designs, are also shown.

Messrs. Grey & Marten have sent us a copy of their new catalogue of 376 pages. It is a well-bound volume, dealing with kitchen ranges, mantel registers, fireplace interiors, sanitary fittings, plumbers' brasswork, locks, latches and other door furniture, miscellaneous hardware, rainwater and drainage goods, electric light and gas fittings, tools, glass, paints, varnishes and distemper, zinc, and other materials and fittings required by the builder. The catalogue contains some hundreds of illustrations, and a full index renders it a handy work of reference for all interested in the building trade.

The Rex Roofing Company (Belfast) have sent us a booklet of twelve pages, containing particulars of their "Rex" roofing. The material is a sanded waterproof felt, and can be laid on sloping roofs of all kinds. For many purposes light timber trusses of the bow-string type are used, and some of these are shown in the catalogue.

Mr. T. Bourne (Burslem) has sent us a circular describing and illustrating his patent "Eclipse" roofing tile. The special feature is an arrangement for draining the tiles. Down the middle of each tile a wide channel is formed, beginning about 3 in. from the head and ending about 3 in. from the tail; from the lower end of the main channel two smaller grooves are formed running diagonally to the lower corners of the tile. The main channel lies under the joint in the course of the tiles above, and thus allows water passing through the joint to drain away freely.

The Carron Company (Carron, Stirlingshire) have sent us a catalogue of 148 pages, dealing mainly with rainwater and drainage ironwork, but containing also many illustrations of cast-iron brackets, seat and desk standards, furnace doors, windows and roof lights, lawn borders, etc. In the rainwater section, eaves-gutters and pipe-clips are shown in a great variety of designs, and the catalogue as a whole is one which the architect and the builder will find useful. Reference is facilitated by a good index.

We have received from Messrs. S. W. Francis & Co. a copy of their new catalogue of fifty-six pages. It contains illustrations of their well-known revolving shutters in wood, iron, and steel, and a very large number of sections of brass sash-bars, etc., for shop-fronts and other purposes. Among the other contents are ornamental metal caps for pilasters, plate-glass facias and stall-plates, metal grilles and gates, signboards, and raised letters. It is a catalogue of a practical kind, and will be specially useful to the shopfitter.

ROYAL PHOTOGRAPHIC SOCIETY OF GREAT BRITAIN.—A House Exhibition of Photographs (portraits of people eminent in the arts and sciences), by Mr. E. O. Hoppe, F.R.P.S., will be held at 35, Russell-square, London, W.C., and will remain open, free to the public, till Saturday, May 28, from 11 a.m. till 6 p.m., Saturdays 11 a.m. till 2 p.m.

EXAMINATIONS FOR CARTOGRAPHERS. — The Civil Service Commissioners announce that, in addition to the open competitive examination for situations as cartographers in the Hydrographic Department of the Admiralty, which is to be held in July next, another open competitive examination for similar situations will be held in December. Forms of application for admission to the December examination will be ready for issue about the middle of July, and will then be obtainable on request, by letter, addressed to the Secretary of the Civil Service Commission, London, W.

THE CLASS OF LICENTIATES:

THE VIEWS OF THE SOCIETY OF ARCHITECTS.

WE extract the following from the current issue of the *Journal* of the Society of Architects:—

"The procedure for election to this third class of architects will be somewhat unusual, if we understand it rightly. The candidates' qualifications, after being submitted to the Council, will be published in the *Journal*, and country applications will also be submitted to the local architectural society, whether the candidate is a member of that society or not. The application will then come back to the Council for further consideration, with any remarks which may have been made upon it by the local society, whose members, it should be noted, have no voice in the election of a licentiate, which will be solely in the hands of the Council.

Let us go a step further and assume that the candidate has been elected a Licentiate, and see what his position is. He may have in his office assistants who are associates of the Royal Institute of British Architects, or members of other societies, and as his status will be inferior to these, we may fancy with what feelings the staff will view the step he has taken. In any case, he will be classed as unfit for corporate membership in the Institute, a mere hanger-on, with neither vote nor voice in its management

There is, we understand, some talk of the possibility of Licentiates eventually becoming Fellows, but we should imagine that the Associates, who form a powerful section of the Institute, will have something to say to any proposal for promoting these affiliated hangers-on over their heads. In any case, the bait thus held out to the Licentiates will in practice probably prove a delusion.

So far as we are concerned, the interesting point is whether members of the Society of Architects will join the Institute under these conditions. There are no doubt persons who call themselves architects, but who have no right to the title, who will be delighted to avail themselves of the opportunity of getting even a third-class Royal Institute of British Architect's qualification, which from their point of view may be better than none at all. But if these persons are willing to face the necessary publicity of an election in order to obtain the Licentiate's certificate, will it raise the standard of the profession or accomplish the object which the Institute have in view? We think not.

In our opinion the Institute are making their effort too late; other architectural societies have become so firmly established that there is no possibility of there being (as there should have been) only one architectural body, and what we have to deal with is not what should have been, but what is.

The desire of the Institute is, we believe, to get every architect to join them, and then to go for a Registration Bill within the Institute, but it is certain that they will not accomplish either of these objects (under the conditions which they propose). In the first place, they will not get the support of responsible architects who do not now belong to the Institute, and, secondly, they will never succeed in getting through Parliament a Registration Bill which does not include every *bonâ-fide* architect, whether he is a member of any architectural institution or not.

We think the solution of the difficulty in which the Council of the Institute find themselves in being practically pledged to Registration, and not seeing their way clear to deal with it on sufficiently broad lines, will be found in the suggestion that for the purpose of Registration only every architectural society should co-operate with the Institute in promoting a Bill under which each Society would preserve its identity, while being federated on the question of Registration.

Correspondence.

LICENTIATES OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

SIR,—Your attention has doubtless been called before this to the important new departure which will be made when admission to the new class of Licentiates of the Royal Institute of British Architects will be opened for a period of twelve months. My Council hope that architects throughout the Empire, whether in practice or acting as assistants, who are not members of the Royal Institute, will take this opportunity of becoming associated with the representative body of their profession. It is considered that it is only by some such step as this that the Royal Institute can hope to obtain through public action a higher general standard of professional attainment among architects, and a greater measure of organised strength for the protection of the interests of the profession.

I send you with this a statement dealing with the new class of Licentiates which has been sent to the Presidents of the Allied Societies.

IAN MACALISTER.
Secretary, R.I.B.A.

The Editor of the *Builder*,
Catherine-street, Strand.

Copy of the Letter Addressed to the Presidents of Allied Societies.

DEAR SIR,—We have the honour to invite the attention of your Society to an important development in the constitution of the Royal Institute of British Architects, which has lately been sanctioned by the grant of a Supplemental Charter and new By-laws by His Majesty the King and Privy Council.

A new class of members, having the chartered right to the designation of Licentiates of the R.I.B.A., has been created. This class is open to all practising architects of good standing who have attained the age of thirty years and either (*a*) have been engaged as principals for at least five successive years in the practice of architecture, or (*b*) have been engaged for at least ten successive years in the practice or the study of architecture.

Candidates for this class are not required to pass an examination or to submit to election by the General Body, but must satisfy the Council of the Royal Institute that they are fit and proper persons to be admitted to the class.

Under the provisions of the Supplemental Charter of 1908 *candidates for the class of Licentiates will only be admitted during the twelve months from March* 23, 1910, *to March* 23, 1911.

Under His Majesty's Charter any Licentiate who is eligible as a Fellow may at any time before December 31, 1920, be admitted for nomination to the class of Fellows when he has passed an examination to be prescribed by the Council.

Licentiates will be required to make an annual payment of one guinea to the Royal Institute, and for this they will be entitled (1) To use the affix Licentiate R.I.B.A. (2) To receive the *Journal*, the *Kalendar*, and other publications of the Royal Institute. (3) To use the Institute premises, and (4) Subject to the Charter and By-laws to attend the meetings of the Royal Institute.

In view of the necessity of closer organisation of the members of the architectural profession throughout the Empire, both for the advancement of the art of architecture and for the promotion of the interests of the profession by means of Parliamentary or other action; it is highly desirable that a knowledge of this new means of becoming associated with the work of the Royal Institute should be spread as widely as possible among those architects who are at present outside its walls.

Any action which may be taken in the future to secure a higher standard of professional attainment and a greater security for properly qualified architects can only be successful if it is based upon the support of a substantial majority of the practising architects of the Empire, and the Council of the Royal Institute hope that your Society will do all in its power to assist the efforts that are now being made to obtain this support.

We have pleasure in sending you herewith a packet of nomination papers for Licentiates, and we shall be glad if you will take an early opportunity of making an official announcement, and of taking effective steps by sending by post to all the architects in your province a notice of the creation of this class, drawing special attention to the fact that it is only open for twelve months, and informing them that the above papers are in your hands, and may be obtained on application at the offices of your Society.

We feel that it is the duty of the Institute and its Allied Societies to get into touch with all architects in the Empire, and we are sure we may count on your zealous personal assistance to this end.—We have the honour to be, dear sir,

Yours faithfully,
(Signed) ERNEST GEORGE, President.
(Signed) HENRY T. HARE, Hon. Secretary.
(Signed) IAN MACALISTER, Secretary.

Since the foregoing letters were put into type we have received this communication:—

SIR,—The following information with regard to the new by-laws of the Royal Institute may be of interest to your readers:—

The Privy Council have approved the by-laws as revised by the general meetings of February 7 and 15, 1910, with the exception of the new by-law 24. They have substituted for this the old by-law 22, with the addition of the Licentiates, and they have asked the Council to submit an amended form of words with reference to the action to be taken towards members who take part in competitions against the wish of the Council. This amendment will be taken into consideration by the Council without loss of time, and their recommendations will be submitted to the general body.

IAN MACALISTER,
Secretary.

THE NATIONAL MUSEUM OF WALES.

SIR,—With reference to the competition of the National Museum of Wales, Cardiff, we, as competitors, desire to record our protest on account of the very flagrant breach of both the conditions and answers to questions raised by competing architects as follows:—Basement, G. 2.—"A well-lighted basement is contemplated under the whole of the buildings." Basement has very little light at all.

The main entrance hall has only two lights, and those to an area.

Study and reserve galleries—mezzanine floor—the light on the floor only.

As to the first portion proposed to be erected, it is mentioned at least three times that the large lecture theatre must be included, and the aquarium should be. These two buildings being the most costly, presented the greatest difficulty of keeping the cost of the first portion to one-third, and in the premiated design both these buildings are omitted.

Portion of the workshops and workrooms were also asked to be included in the first portion, and none are provided.

No service lift provided in the first portion. In the exhibition of the designs the reports were not available.

We submit in competitions of this magnitude that the conditions ought to be strictly adhered to, and we can only conclude that such masters as Sir Aston Webb and his colleagues were tied in their assessing by financial conditions made after the instructions to architects were issued.

COMPETITORS.

A RATEPAYER'S APPEAL.

SIR,—Now that the new London County Council has been elected, the moment is, I consider, opportune for once more calling attention to a matter of serious moment to London ratepayers. I allude to the opportunity that offers for securing a substantial yearly income from a new source, and of saving a large outlay in the erection of a new building. The income I refer to is the profits, some 15,000*l.* per annum, of the Middlesex Deed Registry, and the building that I consider unnecessary is the building that the Metropolitan Water Board is proposing to erect in London.

The profits of the Middlesex Registry have for some years past been taken by the Registry of Titles known as the Land Registry. The Land Registry has been carried on at a heavy loss that even the added profits of the Middlesex Registry have not covered.

The leading experts are all in agreement on the following points:—

1. That registries of deeds, such as exist in Middlesex and Yorkshire, are valuable institutions, and a great safeguard against fraud.

2. That the registry of titles that has been in existence in this country since 1862 is a failure.

3. That the experiment of registering titles compulsorily that has been tried in the County of London since 1899 has proved the system to be insecure, complicated, and expensive, and the experiment should be brought to an end.

4. That the profits of about 15,000*l.* a year of the Middlesex Deed Registry, now wasted in continuing an unsuccessful experiment, should (following the precedent set by the Yorkshire County Councils with regard to their local registries of deeds) be forthwith secured by the County Councils of London and Middlesex and applied in aid of the rates.

5. That the London County Council should promote the extension of the Middlesex Deed Registry so as to cover the whole of the County of London. This would not only confer a benefit upon the public, but at the same time increase the profits to be derived from the Registry, from 15,000*l.* to quite 30,000*l.* per annum.

The above matters have a direct bearing on my proposal with regard to the building required by the Water Board.

In 1898 Parliament voted 265,000*l.* for the Land Registry building, since erected in Lincoln's Inn-fields. At the time it was stated that if the experiment of compulsory registration of title failed, the building could be used for other purposes. It is now clear that the experiment has failed.

At the last meeting of the Metropolitan Water Board a proposal was brought forward to erect new offices in Rosebery-avenue. The matter stands over for further consideration.

My proposal is that the Water Board should take over the Land Registry office. I believe it would be found quite suitable for their purpose without interfering with that portion of the building that is set apart for the Middlesex Deed Registry. If my suggestion is acted upon the ratepayers will thus be saved the heavy expense of another public building in London.

I trust the financial authorities of the bodies concerned will not allow the present opportunity to slip of acquiring a new source of income of a substantial amount, and of utilising an existing building, thereby saving the ratepayers the heavy cost involved in the erection of a new building. J. S. RUBINSTEIN.

LONDON MASTER BUILDERS' ASSOCIATION.

THE Council held their usual monthly meeting at 31 and 32, Bedford-street, on Tuesday, March 22, when there was a large attendance.

The Emergency Committee reported on the charges proposed to be made by the Port of London on building materials entering the port. It was decided to protest against the proposed charges, and the Board of Trade be asked to receive a deputation on the subject.

Report by the Committee was also made on the new regulations affecting the erection of buildings made by the London County Council under the General Powers Act, 1908.

Reference from the same Committee was also made to the meeting with the Master Slaters concerning the proposed standard system of measurement of slating and roof tiling.

The Finance Committee's report was received, and the rate of subscription was decided upon for the current year.

New ordinary members and new associate members having been elected,

The Office Premises Committee's report was received; it is expected that the new offices in Kingsway will be occupied at an early date.

It was decided that members who may be engaged in litigation arising out of the conduct of their business could not rely upon the Council rendering financial assistance from the funds of the Association unless the particulars relating to the dispute were submitted to the Council for their consideration, so that the question of whether or not financial assistance could be afforded should be decided by the Council beforehand.

Many other subjects of interest were discussed, among them being the question of affiliation of kindred bodies.

LONDON AND DISTRICT BOROUGH COUNCILS.

Greenwich.—Subject to necessary consents being obtained, the wharf frontage of Norman Wharf Depôt is to be extended, at a cost of 800*l.*, instead of 300*l.*, as proposed some little time ago. The Engineer is to prepare plans for an underground convenience in King William-street. Tenders are to be invited for forming and paving Wyndcliff-road as a new street.

Hackney.—A new lavatory is to be built in the Town Hall, at an estimated cost of 160*l.*, from plans prepared by the Borough Engineer. 220*l.* is to be spent in kerbing and channelling in Albert-road. The following plans have been passed:—Mr. W. H. Cone, workshop, Braydon-road, Clapton Common; Messrs. T. E. Davidson & Son, Primitive Methodist church, Southwold-road and Theydon-road; Messrs. Rowlandson & Co., factory, Darnley-road; Mr. F. Hamlett, workshop, Clarence-mews.

Islington.—The Works Committee have considered a report from the Borough Engineer as to the desirability of experimenting with Leicestershire granite tar-macadam for paving ordinary macadamised roads, this form of paving having proved very successful in certain districts where it had been laid. They have decided that a trial strip 50 yds. long be put down in Highbury New Park, and a similar length in Tufnell Park-road, at a cost of 145*l.* and 122*l.* respectively. Electric mains are to be extended, at a cost of 150*l.*; 760*l.* is to be spent in the reconstruction of sewers and gullies in Douglas-road.

Leyton.—Plans and estimates are to be prepared for an underground convenience at Leytonstone, near the Green Man public-house. Mr. J. Dunn has lodged plans for twenty-six houses (flats) in Lea Bridge-road.

Southgate.—The District Council has passed the following plans:—Mr. G. E. James, ten houses, Greenwood-gardens, Palmer's Green; Mr. J. R. Ives, three houses, Broomfield-lane, Palmer's Green; Mr. W. R. Bertie, seven houses, Burford-gardens, Palmer's Green; Messrs. Edmondsons, Ltd., five houses, Fernleigh-road, Winchmore Hill; Mr. S. H. Hall, eight stables and coachhouses, rear Nos. 14a to 19, The Promenade, Palmer's Green.

Southwark.—A small hall is to be provided at the Manor-place Baths, at a cost of 150*l.* Plans have been passed for Messrs. Wood & Ainslie, Broad Sanctuary-chambers, Westminster, S.W., for the erection of buildings at Guy's Hospital, White Hart Inn-yard, Borough High-street, S.E.

SCOTTISH HISTORICAL EXHIBITION.

THE arrangements for the promotion of the Scottish Exhibition to be held in Glasgow next year are making satisfactory progress. The site in Kelvingrove Park, granted by the Corporation of Glasgow, is an ideal one for such an enterprise. There is no intention of competing either in extent or character with the two former exhibitions held in Glasgow. These were of an international description, and the whole area of the Kelvingrove Park was devoted to their use. The present exhibition will be of a Scottish national character, and will occupy the eastern portion of the park from the roadway connecting Radnor-street and Bank-street. The exhibition will include exhibits of arts and industries in which the Scottish people are, or have been, pre-eminent. The whole of the space available on the south side of the park adjoining Sauchiehall-street will be occupied by the Palace of Industries. A large hall is also to be built dedicated to the memory of Lord Kelvin, in which it is proposed to arrange exhibits requiring power (the power being, appropriately, electrical), and a special committee has been formed to organise an exhibit illustrating and commemorating Lord Kelvin's work in the world of science and mechanics. The first sod will be cut early in May next, and thereafter building operations will be commenced, the first structure to be reared being the Palace of Industries. The main portion of the Industrial Hall will be rectangular, with two wings projecting on either side to form three sides of a square, the fourth side of which will be completed by the administrative block and conference hall. This enclosed court will form a sheltered area convenient for open-air music, and for this purpose a small bandstand will be placed in the court side of the administrative block. Surrounding the court and forming part of the Industrial Hall there will be verandas, 20 ft. wide, leading into two-storied refreshment-rooms and roof garden tearooms. Seating accommodation will be provided in this court for 4,000 persons, exclusive of the verandas and tearooms. In addition to the main entrances to the Industrial Hall from the ends of the two wings, access will be obtained from three doors in the Music Court. The architects are Messrs. Walker & Ramsay, Glasgow. —*Glasgow Herald.*

THE BUILDERS' CLERKS' BENEVOLENT INSTITUTION:

ANNUAL DINNER.

THE thirty-second annual dinner of the Builders' Clerks' Benevolent Institution was held on Tuesday evening in the King's Hall, Holborn Restaurant, W.C., Mr. William Downs, President, occupying the chair. There were also present Lieut.-Colonel G. H. Trollope, and Messrs. C. J. Bennett, F. Chester, S. Chatfeild Clarke, Archie Colls, J. Howard Colls, Leonard Horner, E. B. I'Anson, T. Hall, B. Hannen, R. R. Batstone, Alex. Ritchie, R. Downs, F. S. Oldham, Percy Tubbs, C. J. Harris, F. J. Minter, W. Woodward, C. Watkins, W. F. Wallis, H. C. Walker, T. L. Green, P. Gordon, T. M. Theobald, J. Austin, A.C.I.S., Secretary, E. Brooks, Treasurer, and others, the company numbering about 330.

The loyal toast having been suitably proposed by the Chairman and honoured,

The Chairman proposed the toast of the evening, "The Builders' Clerks' Benevolent Institution." He said the Institution was founded in the year 1866, and its progress had been steady ever since. The relief given in the first year was 12*l.* 15s., whereas last year the amount was nearly 800*l.* It was very necessary that means should be taken to interest more builders' clerks themselves in the Institution, for help from within was better than help from without, and the Institution wanted all the assistance it could get. There were thirty pensioners—twenty-eight women and two men—to keep, and that took a great deal of money, although they were not extravagant, because they were not able to pay more than 24*l.* to a pensioner, whereas much more was paid by other institutions. In times gone by the Institution was able to keep nine orphans in the Alexander Orphanage, but he regretted to say that this had lapsed, as the cost was too great, and they could not continue this work unless someone would come to their assistance. There were on the lists candidates who were eligible and anxious to come upon the Institution, but they had not the funds at the moment. The Institution was not in debt, but it had no surplus income, and for that reason they could not extend their sphere of usefulness. Earnest appeals had been made to the trade, but the times were so bad that men were not able to assist as they wished. Another matter that affected them was the Government Old Age Pension scheme. That was right in itself, but the old folks were not eligible until they were seventy years of age, whereas the Institution had to take a man at sixty, and that fact justified the existence of the Institution. He was afraid that they would have to draw upon their invested funds to the extent of some 300*l.*, and he therefore made a strong appeal to them to assist the Committee to avoid doing this. Naturally they were most anxious not to draw in this way.

Lieut.-Colonel G. H. Trollope, V.D., then proposed the toast of "The Architects and Surveyors." He said that architecture was a sister art to poetry, and poetry was represented in the magnificent buildings in London and the provinces which had been erected in recent years; they reflected the greatest credit on English art. When he started his career he believed that architecture was at a low ebb, and the buildings erected in the Early Victorian era were not very creditable as a rule to the nation. As to the surveyors, they provided ready means of making estimates, and some of those estimates were rather low nowadays, though that was not the fault of the surveyor. Builders relied on surveyors in the making-up of the final accounts, and the assistance they afforded to the trade was very great.

Mr. William Woodward, who responded for the architects, said that it was true that architects were poets—poets in stone—but the poetry of architecture was becoming very much mixed, just as the building trade was.

Mr. Stanley Chatfeild Clarke, F.S.I., responded for the surveyors. In the course of his remarks he said that if some of the West-end decorating firms went on supplying and decorating houses at so much per room, fitted complete, the quantity surveyors would have to start a benevolent fund somewhat on the lines of the Builders' Clerks' Benevolent Institution, the good work of which he referred to in conclusion.

Mr. F. S. Oldham then proposed the toast of "The Builders and Builders' Merchants." During the existence of the Institution it had been supported by some of the best-known builders and builders' merchants of the country. With the toast he coupled the names of Mr. W. F. Wallis and Mr. Alex. Ritchie.

Mr. Wallis, who replied for the builders, said that the trade was the second largest in the country, but to be a builder demanded a certain amount of enterprise, courage, power of organisation, foresight, and tact in dealing with workmen and others.

Mr. Ritchie, replying for the merchants, spoke of the value of technical education in the trade—to what was being done and what might be done. He also referred to the value of such an Institution in view of the vicissitudes of the trade. Builders' merchants were finding it more and more difficult to get in touch with architects and builders in putting before them new materials and inventions. He appealed for a little more consideration, and suggested that at least they might have access to architects and builders one day a month.

Mr. Leonard Horner, Past-President, then suitably proposed the last toast, that of "The President," who, in replying, was received with musical honours. He referred to the great assistance he had received from the Secretary, Mr. Austin, and the Committee, and said that of every shilling subscribed 11¼d. went to the help of the beneficiaries.

Subscriptions, etc., to the amount of 358*l.* were announced during the evening, and the President guaranteed to make up the sum to 375*l.*

SOME SANITARY DEFECTS.

THE following items, taken from the Engineer's Report to the Bradford Sanitary Association, may be of interest to our readers:—

"*Sewer Gas Entering House by Enclosed Porch Roof.*—This was an instance of leaking outside soil-pipe at concealed point where it passed through the ceiled loft of a porch, and thence escaped into hall and closet-room, by the line of the soil-pipe, not left secure in its passage through the wall.

Intercommunication of Bad Drains.—A branch drain across lawn leaked strongly by way of a mouse-run emerging on the edge of the grass where no escape had been detected at previous inspections, the run being probably new. In testing the joints made here, another escape of smoke disclosed itself close to the first leakage, but proceeding from open joints in the main outlet drain about 7 ft. or 8 ft. distant, and thence through a mass of cast soil, open and stony quarry rubbish, and into the trench of the repaired branch drain.

Cistern Overflow as Drain Ventilator.—From the roof of an old country house in Monmouthshire, a cistern was found having untrapped and undisconnected overflow to cesspool and acting as ventilator close to kitchen and bedroom windows. By nine out of ten householders such a grave defect is not dreamt of as such, even when the fact is noticed. The common perception is blind to the part played by the foul drain and the cesspool, and sees only the innocent rainwater duct.

Drain Wedged in Between Two Farm Buildings.—At a modern farmhouse in the same district, a 4-in. fireclay drain was jammed in between the house and a dairy building, without room to make proper joints. Tests proved the entrance of foul drain and cesspool air into the dining-room, the outer wall of which was actually grazed by the drain for 7 ft. or 8 ft. This was a case for the special security of a cast-iron pipe of standard water quality.

Danger of Tippler Closets.—In two consecutive yearly inspections, a principal branch drain from cottages in connexion with a great sanatorium has been found choked by the abuse of the cottage tippler closet as a convenient means of getting rid of solid rubbish. Last year the block was caused by a scrubbing-brush, etc. This year disholoths and large pieces of parcel paper proved to be the cause. This experience proves that such appliances, apparently cheap, efficient, and certainly economic of water, are worse than useless, and their day is numbered.

Mal-Treatment: The Bane of Good Drainage.—At the same important institution was disclosed, but a few weeks ago, the most extraordinary example of the havoc which can be wrought upon the best work by ignorance and

presumption, a parallel to which I cannot recall, either in my own experience, or from that of others. For three years the attention of the management had been drawn by me to a gradual growth of inefficiency in the discharge of an upper section of the main drain, the sewage standing at two points. The cause seemed obscure, as flushing would not remove it, while the flow was not absolutely stopped, though enfeebled. Settlement of the ground was dismissed as a solution, and no adequate ground for persistent obstruction was apparent. Remedial measures were urged, but not attempted, so far as my knowledge was concerned. Finally, I enforced the necessity of drastic means—a thorough exposure of the defective length, about 16 yds. of 4-in. fireclay pipes. This was done, and the mystery solved. The entire length was found perfect, so far as the fall, the joints, and the invert or bottom of the drain were concerned, exactly as laid and tested, under my own direction, eighteen years before, when the whole scheme of drainage was carried out by a skilful and trustworthy contractor trained under me, the pipes and joints being a special make. But, unknown to us, someone had been at work, and the surface of the drain was found riddled with holes. Of the twenty-three pipes exposed, no less than thirteen had been broken into with the hammer and chisel, many of them small, for the purpose of locating an obstruction, and others enlarged to remove one. In every case these inspection or hand holes were found open, admitting of the fall of stones and earth into the pipes. In one case a hole, 14 in. by 5 in., had been covered with the lid of a tin biscuit-box, which had perished. In another, loose stones and bricks were used, and at a third a single loose stone was thrust in. These were all the joints attempted.

Thus each of these "visitations," as they may be termed, was a step towards destruction, until the whole drain was riddled, and left a unique example of brutal usage."

FOREIGN AND COLONIAL NEWS.

PLANS FOR CENTRAL MARKETS, SPAIN.

The *Gaceta de Madrid* of March 23 announces a competition of plans, specifications, and estimates for the construction of a central market at Valencia, the cost of which must not exceed 2,000,000 pesetas (about 74,000*l.*). The plans and estimates must be submitted, within 150 days from the date of the *Gaceta*, to El Señor Alcalde Presidente, Alcaldía Constitucional, Valencia. The successful competitor will enjoy certain preferential rights in the subsequent call for tenders for the execution of the works, and if such rights are relinquished no will be entitled to a premium of 25,000 pesetas (about 930*l.*). One of the conditions is that plans must be previously approved by a Spanish architect. The *Gaceta*, containing further particulars, may be seen by British firms at the Commercial Intelligence Branch of the Board of Trade, 73, Basinghall-street, London, E.C.

BUILDING IN CHILE.

The *Diario Oficial* of February 16 publishes the text of a law, drawn up by the Ministry of Industry and Public Works and approved by Congress, providing for an expenditure of 2,000,000 pesos (about 90,000*l.*) in connexion with the erection of public buildings.

THEATRE CONSTRUCTION, ALEXANDRIA.

In reference to the proposed erection of a theatre at Alexandria, H.M. Consul-General, Mr. D. A. Cameron, reports that the municipality are prepared to receive, up to April 30, propositions in connexion with the construction of a theatre. The auditorium must be capable of seating from 1,200 to 1,500 people; the cost of construction should be about 60,000E7. (about 61,560*l.*). Offers should be addressed to M. l'Administrateur de la Municipalité, Alexandria, from whom further particulars may be obtained.

BUILDING CONSTRUCTION, BRAZIL.

H.M. Consul-General at Rio de Janeiro, Mr. R. Casement, C.M.G., reports that, according to the *Journal do Commercio* of February 10, the Brazilian Minister of Communications was shortly to issue a call for tenders for the construction of a building in Porto Alegre for the housing of the postal and telegraph service of that town. The estimated cost of the work is said to amount to 724,000 milreis (about 45,250*l.*).

BUILDING MATERIAL AND ACCESSORIES, CALCUTTA.

Indian Engineering (Calcutta) states that the Trustees of the Victoria Memorial to be built at Calcutta have accepted the tender of a firm at that city for the execution of the work. The building, which will take some eight years to complete, is estimated to cost 50,00,000 rupees (about 333,000*l.*). The structure is to be of brick, faced with white marble slabs from Jodhpur. The name and address of the firm who have been given the contract may be obtained by British firms on application to the Commercial Intelligence Branch of the Board of Trade, 73, Basinghall-street, London, E.C.

CONTRACTS, ETC., CHINA.

The United States Chargé d'Affaires at Peking has furnished to his Government information concerning the letting of contracts and the supplying of materials to contractors for the Chinese Government, which, he says, applies fully to building construction in North China and, in a great degree, throughout the Chinese Empire:—"The Chinese Government have no rules, printed or otherwise, for letting contracts, or for buying materials. The man on the spot with the lowest price and quickest delivery gets the work. Ninety per cent. of all the building done in China is done by Chinese contractors. When foreign material is specified, such as heating plants, plumbing, electric light plants, light fixtures, constructional steel, etc., tenders for these materials, either delivered on the ground or put in place, are invited from the many foreign firms in Tientsin or Shanghai. These firms hold agencies for the materials required, and all arrangements are made with them. Neither the foreign engineer nor the native contractor deals directly with the home houses, as it saves much trouble to deal with large houses well established in China. The prices of the latter include freights, duties, etc., and, where necessary, quotations are given including landing the goods where wanted and putting them in position. Unless connexions are made with a well-established firm, or a permanent agency for a special line of goods created, there is little chance of introducing foreign building material into China. As the large firms have their own expert engineers, a contractor can get fair prices quoted for everything at short notice. These firms make it their business to be closely in touch with all proposed work, both Government and private. . . ."

SWEDISH ECCLESIASTICAL ART.

We are asked to announce that a loan exhibition of Swedish ecclesiastical art is to be held at Strengnäs, near Stockholm, from June 20 to August 20. It will comprise articles collected from churches in the diocese of Strengnäs, including sculptured wood crucifixes, figures of saints and apostles dating from the XIIth century onward, while the XVIIIth century will be represented by numerous memorials in carved wood, the whole giving a comprehensive view of the development of Swedish woodcarving. The history of the art of the diocese will also be illustrated by the exhibition of fonts, paintings, chandeliers, altar-cloths, and chasubles. A feature of special interest will be the magnificent collection of Flemish altar-screens, the property of the cathedral, including the largest and best-preserved example now in existence of a XVth-century altar-screen from Brussels, a work by "the master with the boy's head." Strengnäs may also claim to possess an unusually good specimen of Swedish mediæval architecture in its remarkable brick cathedral, especially noteworthy on account of its complete decoration with XIVth-century paintings, which have been carefully laid bare since their recent discovery. Those interested can obtain further information from Dr. Roosval, 24, Norr Mälarstrand, Stockholm.

PROJECTED NEW BUILDINGS IN THE PROVINCES.

ABERDEEN.—The plans of the following new buildings in Aberdeen have been approved by the Plans Committee of the Aberdeen Town Council:—Shed and stable at the rear of the premises, No. 492, Union-street, for Messrs. A. & W. Alexander, fish merchants, per Messrs. Wilsons & Walker, architects; alterations in connexion with the premises, No. 3, School-road, for Dr. Robert Polson, Chanonry, per Mr. George Watt, architect; fish oil factory on the west side of Old Ford-road, for the Bon-Accord Fish Oil Company, per Mr. G. F. Anderson, architect; fish oil factory in premises on the west side of Russell-road, for Mr. John T. Kindness, fishcurer, per Messrs. Walker & Duncan, architects; alterations in connexion with the Royal Army Medical Corps (T.F.) Headquarters, Fonthill-road, for the County of the City of Aberdeen Territorial Association, per Mr. A. H. L. Mackinnon, architect; tinplate factory on the south side of Roslin-place, for Mr. John Robertson, manufacturer, per Mr. John Rust, architect; fishcuring premises on the east side of South Esplanade West, for Mr. Alexander Smith, fishcurer, per Mr. Harvey Mennie, architect; workshop at the rear of the premises Nos. 37-41, Chapel-street, for Mr. W. D. Forbes, house carpenter; alterations and additions in connexion with the premises, Nos. 179-185, George-street, for Mr. Robert M'Intyre, furniture dealer, per Mr. George Watt, architect; alterations in connexion with the premises on the north side of Union-row, for Messrs. R. & J. Shinnie, carriage builders, per Mr. W. E. Gauld, architect.

Ashton-under-Lyne. — School, Minor-street (1,000 places); Mr. D. H. Wall, Secretary, Ashton-under-Lyne Education Committee.

Bedford.—The Bedford Town Council have approved the plans of the following, viz.:—First portion of Elstow-road Building Estate, for Mr. H. Burridge; four houses, Trinity-road, for Messrs. C. Melcombe & Son; house, Newnham-avenue, for Mr. F. Pryer; two houses, St. Paul's-road, for Mr. C. Bushby; two houses, Tennyson-road, for Mr. E. E. Spencer; six houses, Ouseland-road, for Mr. E. Casbeard; shop and premises, Howbury-street, for Mr. F. C. Butterfield; four houses, Dudley-street, for Mr. W. Braybrook; machine-room, Howard-street, for Beds. Standard Company; two houses, London-road, for Messrs. W. & G. Jones.

Birmingham.—School, Sladefield-road; Mr. F. H. Smith, builder.

Bude.—Wesleyan Sunday-school (3,000*l.*); the Trustees.

Chiswick.—Theatre; Messrs. Meakin & Archer, architects, 32, Nicholas-lane, E.C.

Colne.—Parish church; the Vicar, Holy Trinity, Colne.

Doncaster.—Additions to Infectious Diseases Hospital; Mr. F. O. Kirby, architect, Doncaster.

Dudley.—The Town Council has passed the following plans:—Reconstruction of works, Fountain-street, for Messrs. Helliwell's, Ltd.; additions to buildings, St. Thomas's-street, Netherton, for the Trustees of Conservative Club, Netherton; garage, King-street, for the Wolverhampton and Dudley Breweries, Ltd.

Dundee.—The following plans and sections of proposed new buildings, etc., in Dundee have been lodged at the office of the City Engineer:—Adelaide-place, addition to villa, for Mr. J. H. F. Henderson; Arklay-street, alteration on boiler-house, for Mr. William Cleghorn; Duff-street, alteration on cottage, for Mr. James Sibbald; Farington-street, dwelling-house, for Mr. Robert R. Smith; Farington-terrace, cottage, for Messrs. Charles Ower & Co.; Nelson-street and Wellington-street, temporary building, for Mr. Arthur Henderson; Paradise-road, addition to dwelling-house, for Mr. John Kidd; Reform-street, alteration on property, for Lamb's Hotel, Ltd.; St. Peter-street, stable, etc., for Mr. John Lawrence; Union-street, alteration on property, for Trustees of Rev. A. C. Wright; Victoria-road, alteration on property for Messrs. John K. Mearns & Co.; Hilltown, additions to property, for the Very Rev. Canon Butti; Arbroath-road, additions to property, for Mr. D. C. Guthrie; Stirling-road, alteration on property, for Mr. D. C. Guthrie; Forfar-road, addition to villa, for Mr. D. Cochrane.

Eastbourne.—The Town Council has passed the following plans:—Addition, St. John's Mead, for Vicar and Wardens, Mr. A. R. G. Fenning, architect; addition to "Alcazar," Arundel-road, for Mr. R. Greey, Mr. M. Hookham, builder; laundry, St. Mary's-road, for Mr. J. Andrews, builder, Mr. J. Coster, architect.

Eccles.—Extensions, electricity works (750*l.*); Mr. N. Hartley Hocking, architect; Messrs. N. Brookes & Sons, builders, Patricroft. The Town Council has passed the following plans:—Eight houses and shops, Boardman-street and Barton-lane, for Mr. Ashworth Hamer; nine houses, Reginald-street, Peel Green, for Mr. A. J. Eggington; extension of offices, Gorton-street, Peel Green, for Messrs. L. Gardner & Sons; extensions to rope works, New-lane, Winton, for Messrs. Henry Cardwell & Sons, Ltd.

Elgin.—Pavilion, Cooper Park; Surveyor, Elgin Town Council.

Falmouth.—Pavilion, Gyllyngdune (1,550*l.*); Mr. W. H. Tressider, Surveyor, Falmouth Town Council.

Foulridge.—Parsonage; the Vicar.

Glasgow.—The Glasgow Dean of Guild Court have granted linings to Messrs. Carsons, Ltd., Barrowfield Works, Bridgeton, to alter and add to their works; Mr. David Willox, manufacturing chemist, 48, Burgher-street, to erect a workshop in Westmuir-street; the Alexandra Park Property Company, 65, Bath-street, to erect two tenements at the south-west corner of Cumbernauld-road and Aberfeldy-street, and two tenements at the south-east corner of Cumbernauld-road and a new street; the Corporation of Glasgow, to make alterations on buildings for branch post-office at 26, East Clyde-street; Mr. William Anstruther Gray, Carntyne, to construct a

street and sewer at Westmuir Quarry, Parkhead; the British Curing Company, to erect a cottage off Lochburn-road, Maryhill; and the Glasgow Alhambra, Ltd., 41, St. Vincent-street, to erect a theatre at the corner of Waterloo-street and Wellington-street.

Gravesend.—Public baths, Gordon Recreation Grounds (2,000*l.*); Mr. F. T. Grant, Surveyor, Gravesend Town Council.

Guisborough (Yorks).—Additions, workhouse; Mr. Wardman, architect, Redcar.

Harden.—Vicarage; the Vicar, St. Saviour's Church.

Hinckley.—Additions to factory, Lower Bond-street, for Messrs. Atkins Brothers. Factory buildings, for Messrs. Davies & Son.

Hirst.—Block of business premises; Mr. O. Blythe, architect, Ashington.

Hurst.—School; Messrs. E. Marshall & Co., Ltd., builders, Ashton-under-Lyne.

Inverurie.—Laundry (1,800*l.*); Mr. G. Duncan, builder, Inverurie.

Isleworth.—Additions to workhouse; Mr. W. H. Ward, architect, Paradise-street, Birmingham.

Knaresborough (Yorks).—Municipal offices (1,421*l.*); Mr. F. Cartledge, Surveyor, Knaresborough Urban District Council.

Laindon Hills.—School (1,700*l.*); Mr. G. Brown, builder, Grays.

Leaholme.—Mission church; Durham Church Extension Committee.

Lincoln.—Enlargement of Westgate School (1,500*l.*); Mr. R. C. Mintin, Secretary, Lincoln Education Committee.

Littleborough.—R.C. church; R.C. Presbytery, Littleborough.

Lochgelly.—Reconstruction, Lochgelly Equitable Co-operative premises (15,000*l.*); the Secretary.

Londonderry. — Rebuilding Guildhall (24,000*l.*); Messrs. H. Laverty & Son, builders, Belfast.

Manchester. — School, Chorlton-on-Medlock (26,000*l.*); Messrs. J. H. Reynolds and C. H. Wyatt, Secretaries, Manchester Education Committee.

Merton.—School, Old Merton Cricket Ground; Surveyor, Surrey Education Committee.

Nelson.—Primitive Methodist School; Mr. J. Thomas, builder, Nelson.

New Lambton.—School; Messrs. Clery & Charlton, builders, Sunderland.

Northampton.—The Town Council has passed the following plans:—Alterations to Cock Hotel, Harborough-road, also alterations to King of Denmark public-house, for Messrs. P. Phipps & Co.; three houses, King Edward-road and Ashburnham-road, for Mr. A. Glenn, builder; six houses, Glasgow-street, for Mr. J. T. Powell. Alteration to fire-station; Borough Surveyor.

Nuneaton.—Factory; Mr. G. Sheppard, New Bridge-street, Nuneaton.

Salford.—Urinal, Cattle Market, Cross-lane; Messrs. R. Rouse & Son, Salford. Addition to Mode Wheel Disinfecting Station; Messrs. James Daniels & Sons, builders, Pendleton. Proposed school, Seedley; Secretary, Education Committee. Building, Leicester-road and Gt. Cheetham-street, for Messrs. Richardson & Willan, Sedgley Park, Prestwich. Plans have been passed for additions to Albion Works, Salford; also additions to parish hall, Derby-road, Pendleton.

Shildon.—Mission church; Durham Church Extension Committee.

Smethwick (Birmingham).—Police Court buildings; Mr. J. C. F. Allen, architect, Smethwick.

Spennymoor.—Higher grade school (8,000*l.*); Mr. Hilton, builder, Bishop Auckland.

Walcot. — Cookery centre; Messrs. E. Chancellor & Son, builders, Bath.

Warrington.—The Town Council has passed the following plans:—Cabin and timber sheds, Factory-lane, for Messrs. J. Crosfield & Sons, Ltd.; rebuilding Lower Seven Stars and new shops, Bridge-street, for Messrs. Greenall, Whitley, & Co., Ltd.; thirteen houses and house and shop, Wellington-street, for Mr. James Bramhall; premises, Market Gate, for Messrs. Boots, Ltd.; extensions to Presbytery, Buttermarket-street, for the Trustees of St. Mary's R.C. Church.

Watford.—Proposed children's homes; Mr. Ayres, architect, care of Mr. Hill Turner, Watford Board of Guardians.

Wath.—Wesleyan chapel, Roman-terrace (2,000*l.*); the Trustees.

Whitton (Twickenham).—School, Nelson-road, for the Twickenham Education Authority.

HONOURS FOR AN ARCHITECT.—The Senatus Academicus of the University of Edinburgh will confer the honorary degree of LL.D. upon Mr. Thomas Ross, F.S.A., of Edinburgh, at the graduation ceremony in the McEwan Hall on July 8.

General Building News.

CHURCH OF ST. LUKE, GRIMSBY.

Plans and designs have been made by Sir Charles Nicholson, Bart., for the church, to be dedicated to St. Luke, which it is proposed to erect in Grimsby as a memorial to the late Bishop of Lincoln, and as part of a scheme of church extension in the town.

CONGREGATIONAL CHURCH, ROATH PARK, CARDIFF.

Roath Park Congregational Church, Cardiff, occupies a position at the corner of Panywain-road and Morlais-street. The materials used are local stone, with Bath stone dressings. The chief elevation faces Penywain-road, while a tower stands at the corner. The church consists of ground floor and galleries, with a choir gallery and organ chamber behind the rostrum. In addition, a church parlour and minister's vestry are provided on the ground floor, a heating chamber in the basement, and four classrooms on the gallery floor level. The sitting accommodation in the church is for about 650 persons. The windows are glazed with leaded lights of ornamental design, and have been executed by Messrs. Francis & Williams, of Cardiff. The ventilators have been provided by Mr. J. W. Wilkinson, Cardiff. The church is lighted by electricity, the installation having been entrusted to Messrs. A. G. Arnold & Son, of Newport. The heating apparatus is on the high-pressure system, the engineers being Messrs. Hampton & Co., of Cardiff. The building contract amounted to 3,990*l.*, and has been carried out by the contractors, Messrs. David Davies & Sons, of Cardiff, from the designs and under the superintendence of the architects, Messrs. Habershon, Fawckner, & Co., Cardiff and Newport.

WILTON PARISH CHURCH, HAWICK, N.B.

The erection of a large four-manual organ in Wilton Parish Church, Hawick, marks the completion of a scheme for the enlargement and improvement of the church, which has been in progress for some years. To the nave, built in 1860 to the design of Mr. J. T. Emmett, London, there have now been added transepts, transept aisles, chancel, and baptistery. This work has been designed throughout by Mr. James P. Alison, architect, Hawick. The complete scheme has cost about 7,000*l.*

CHAPEL, BARNSTAPLE.

A new Wesleyan chapel (to succeed the smaller chapel-schoolroom built in 1891) is being erected at Newport, Barnstaple. The chapel wil accommodate 250 worshippers. The total cost will be 1,300*l.* The architect is Alderman A. Lauden, J.P., and the builders are Messrs. Cooke & Sons.

COUNCIL SCHOOLS, SHREWSBURY.

The Coleham Council Schools, Shrewsbury, which have been erected at a total cost of about 11,000*l.*, are now open. There is accommodation for 328 boys and 316 girls, and the buildings are the largest elementary schools in the borough. The architects were Messrs. Deakin Brothers.

COUNCIL SCHOOLS, STAPLE HILL, GLOUCESTER.

A block of schools, built to the order of the Gloucester County Education Committee, has been opened at Staple Hill. The buildings have been designed by Mr. R. S. Phillips, Architect to the Gloucester County Education Committee, and the contractor was Mr. E. Love, of Hampton-road, Redland, whose tender was 4,530*l.*

PARISH HALL, EXETER.

In connexion with the scheme for erecting a parish hall in the parish of St. Thomas, near the parish church, as a memorial to the late General Buller, at a cost of something like 2,500*l.*, plans have been prepared by Mr. Harbottle Reed, the Ecclesiastical Architect.

CLUB PREMISES, SHIREMOOR.

The new premises, which have been built in Earsdon-road, Backworth, for the Shiremoor Workmen's Social Club, have just been opened. The building is of stone and brick, two stories high. The ground floor is utilised for the refreshment bar and coffee and other rooms, and there is also a billiard-room for two tables, and two bathrooms. A hall, to accommodate 500 people, and fitted with a stage and retiring-rooms, occupies the greater portion of the upper floor, the remaining space being taken up with a reading-room and library, and the manager's apartments. The total cost is about 3,500*l.*, and the building has been erected by Mr. J. J. Douglas, of Newcastle, from the design of Mr. Percy L. Brown, architect, also of Newcastle.

RESIDENCE, FULWOOD, SHEFFIELD.

A private residence has been erected in the Fulwood district from plans prepared by Messrs. Briggs, Wolstenholme, & Thorneley, architects, of Liverpool. Messrs. Longden & Sons, of Sheffield, were the contractors.

PARISH HALL, BACKWELL.

A parish hall has been erected at Backwell. The premises comprise a large hall affording seating accommodation for 250 persons, with ladies' and gentlemen's rooms, a reading-room, and lavatories. The contractor was Mr. William Lott, of Backwell, and the architects were Messrs. J. & E. J. C. Biss, of Bristol.

WORKMEN'S CLUB, BACKWORTH.

Premises have been erected for the Shiremoor Workmen's Social Club in Earsdon-road, Backworth, at a finished cost of about 3,500*l.* Mr. Percy L. Browne, of Newcastle, was the architect, and Mr. J. J. Douglas, Newcastle, the contractor for the work.

NEW BUILDINGS, ST. MARYLEBONE.

Messrs. Ernest George & Yeates have been appointed architects of the building which the Trustees of the Royal Academy of Music are about to erect on the site of the lately vacated Girls' Parochial Charity Schools. The school buildings stand on the north side of Marylebone-road, adjacent to York Gate. A Swedish church is being built by Messrs. Holland & Hannen in Harcourt-street, West Marylebone, for Count Herman Wrangel, after the designs of Messrs. Niven & Wigglesworth.

GARDEN VILLAGE NEAR SWANSEA.

A garden village scheme has been inaugurated at Fforestfach. Messrs. Pepler & Allen, architects and surveyors, are the authors of the scheme. It is proposed to lay out the site for 100 houses in blocks of two, three, and four. Space has been left for allotments, bowling-green, and playground. The houses will be sold at prices from 200*l.*, and the average ground rent will be between 2*l.* and 3*l.* per plot.

RECEIVING HOMES, WANSTEAD.

On the Aldersbrook Estate, belonging to the West Ham Guardians, the Board are erecting receiving homes for children. The premises will consist of three blocks of buildings, with accommodation for 250 children. The builder is Mr. F. J. Coxhead, of Leytonstone, whose price is 20,493*l.* The clerk of the works is Mr. J. Pope, and the buildings have been designed and will be carried out under the supervision of Messrs. William & John H. Jacques, architects.

PROPOSED CLUB PREMISES, LOW FELL.

The members of the Belle Vue Club are erecting new premises, at an estimated cost of 2,000*l.*, at Low Fell. The building, which has been designed by Mr. J. Newton Fatkin, architect, Newcastle, contains refreshment, reading, billiard, and recreation rooms, with the necessary living-rooms for steward.

CO-OPERATIVE PREMISES, PRUDHOE.

The West Wylam and Prudhoe Co-operative Society, Ltd., are erecting branch premises at Prudhoe Station. Messrs. Charlton & Sons, Crawcrook, are the contractors for the building; slating, Mr. E. W. Baty, Corbridge; painting, Mr. Hall, Prudhoe; gas and other fittings, Mr. Robson, Ryton. Messrs. W. Dixon & Son, of Newcastle and Riding Mill, are the architects.

POST-OFFICE, OBAN.

A new post-office has been completed at Oban. The new building has been erected on ground adjoining the municipal offices. It has a frontage of 82 ft. to both Albany and Shore streets, and is two stories in height. The public office is entered from Albany-street, the elevations to which are faced with granite rubble from Balachulish quarries, with Giffnock sandstone dressings. The cost of the buildings was over 9,000*l.* The architect is Mr. W. T. Oldrieve, H.M. Principal Architect for Scotland.

TRADE NEWS.

The Reigate Mines, Ltd., Reigate, have opened up the ancient building stone mine at Clears, Reigate, which was, we understand, the property of Edward III., and was then only used for work in connexion with the State. This stone is a cream colour. Many of the churches of Surrey have been built with it, Reigate Church being amongst them.

The extensions to the Guildford Union are being warmed and ventilated by means of Shorland's patent Manchester stoves and grates, supplied by Messrs. E. H. Shorland & Brother, Ltd., of Failsworth, Manchester.

The contracts for the electric lifts for the South Manchurian Railway, and also for the Shanghai Municipal Council buildings, have been obtained by Messrs. A. W. Penrose & Co., Ltd., of 109, Farringdon-road, E.C., in competition with German and American makers.

Appointment.

BOARD OF EDUCATION.

Mr. Walter Runciman, President of the Board of Education, has appointed Mr. F. G. Ogilvie, C.B., to a new post of Secretary of the Board for the Science Museum, Geological Museum, and Geological Survey. Mr. E. K. Chambers has been appointed to succeed him as Principal Assistant Secretary of the Technological Branch of the Board.——Dr. H. F. Heath, Director of Special Inquiries and Reports, has been appointed to the post of Principal Assistant Secretary of the Universities Branch of the Board in combination with his present post.

Sanitary and Engineering News.

SEWAGE WORKS, ANSTON, YORKS.

The Kiveton Park Rural Council have erected new sewage works to serve the villages of North Anston and South Anston. The scheme has involved an expenditure of about 3,300*l*. Messrs. Berrington, Son, & Watney, Westminster and Wolverhampton, were the engineers, and Mr. M. A. Boswell, of Wolverhampton, the contractor.

SEWAGE EXTENSION SCHEME, TUNBRIDGE WELLS.

Mr. A. A. G. Malet, M.Inst.C.E., Inspector to the Local Government Board, held an inquiry recently into the application of the Corporation of Tunbridge Wells to borrow 6,700*l*. for the extension of the Hurstwood sewage pumping-station, and other works of sewerage in Broadwater Down. The Borough Engineer, Mr. W. H. Maxwell, was present, and gave evidence.

NEW WATERWORKS, ST. IVES.

New waterworks have been opened at St. Ives. The engineer who designed the scheme was Mr. A. P. I. Cotterell, C.E., Bristol. Mr. Arthur Carkeek, of Redruth, was the contractor. The total cost will be between 14,000*l*. and 15,000*l*.

Miscellaneous.

EXTENSION OF THE PUMP-ROOM BUILDINGS, BATH.

We are informed that at the Bath City Council meeting held on the 5th inst., a letter was read from the President of the Royal Institute of British Architects, asking for particulars as to how any contemplated scheme would affect the Roman baths, remarking that his reason for doing so was dictated by the great interest taken in these ancient works by all architects, antiquarians, and students of English art and history. Letters were also received from the Bath Abbey Council, and also from the Old Bath Preservation Society. Mr. T. Sturge Cotterell, the Chairman of the Attractions Committee, in moving the adoption of the minutes, stated that the Committee had not yet formulated any scheme, but were dealing only with the accommodation the site of the old *Chronicle* office would afford, if it was decided to erect a building thereon adjoining the Roman baths. The letters received would be considered with the respect which they deserved, but he should like to assure all those interested that the safety of the abbey and the preservation of the Roman antiquities, and any further antiquities that might be found during the excavation, would be treated by the Committee as of paramount importance, and every consideration would be paid to the views expressed in the letters received, and by the President of the Royal Institute of British Architects.

WINDSOR CASTLE.

It is stated that Mr. St. John Hope, who has just resigned the Assistant Secretaryship of the Society of Antiquaries, is now engaged, by command of the King, upon the preparation of an elaborate work upon the archæological history of Windsor Castle, which will be illustrated with many plans, views, etc., hitherto unpublished.

OPEN SPACES.

Steps are being taken for the laying-out as a place of public resort the grounds of St. Mary's Church, Brunswick-street, Haggerston, which was built in 1826-7.——Lady Smyth has presented 5 acres of land in a densely-populated quarter of Bristol, mainly to provide a children's playground.——Lord Newport has offered to make over to the District Housing Reform and Open Spaces Association, Birmingham, Hodgehill Common, Castle Bromwich, consisting of nearly 24 acres on the outskirts of the city, as a free gift conditionally upon the reservation to him of certain rights as lord of the manor, and the use and enjoyment of the land in perpetuity by the public.——Friary Park, at Friern Barnet, which Mr. Sydney Simmons has presented to the Urban District Council, will be opened on May 7.

COMBINED DRAINS.

The private Bill which the Surbiton Council has promoted in Parliament for the purpose of avoiding having to bear the expense of reconstructing combined drains in future, and to make property owners liable for the work, came before a Select Committee in the House of Commons on the 22nd ult. The District Council was represented by Mr. Wedderburn, K.C., and Mr. J. H. Keen, who were instructed by Messrs. Baker & Co., Parliamentary agents, and Mr. F. J. Bell, deputy-clerk to the Council. After hearing the evidence of Mr. Bell, Mr. H. T. Mather (District Surveyor), and Mr. W. Nesfield (Sanitary Inspector), the Committee found the preamble of the Bill proved, and granted the clause. The Bill will now go to the House of Commons for the third reading.

HOUSING OF THE WORKING CLASSES, ISLINGTON.

By way of providing efficient accommodation at low rents for the labouring classes, six blocks of dwellings, five stories in height, have been erected in Liverpool-road, for a total of some 1,500 residents. The two-roomed tenements, with baths, will be let at 2*s.* per week; the three-roomed tenements will have baths fitted with hot and cold water supply; all will be lighted with gas served through penny-in-the-slot meters. A large drying-room is provided for general use. The plans, prepared by Messrs. Joseph & Smithem, comprise flower-beds, with shelters, between the blocks. The buildings have been erected out of the bequest, 500,000*l*., of the late Mr. Sam Lewis.

A MONUMENT TO VIRGIL.

It is announced that the Royal Academy of Mantua are taking steps to carry out a suggestion, made by Commendatore Boni, one of their body, to erect a monument to Virgil. Commendatore Boni's proposal takes the somewhat novel, yet quite appropriate, shape of dedicating the Pietole Grove, on the River Mincio, to the poet's memory, and of planting the grove with the flowers, shrubs, and trees which were indigenous in Italy, and are mentioned by classical authors, or are now recognisable in examples of ancient art. Professor Boni would supplement the memorial after that kind with a temple to enshrine a reproduction, in gilded bronze, of the statue of Augustus discovered in the Villa Livia, and having its walls decorated with pictures of Virgil and the Muses as in the mosaic excavated in Numidia. His project is confessedly intended to realise the desire expressed by Virgil in the familiar lines, "Primus ego in patriam mecum, modo vita supersit, . . . In medio mihi Cæsar erit, templumque tenebit."

THE SCIENCE MUSEUM.

Mr. Walter Runciman, President of the Board of Education, has appointed a Departmental Committee to consider and report upon various questions in regard to the present condition and the future development of the valuable collections comprised in the Board's Science Museum at South Kensington and Geological Museum in Jermyn-street. In particular, the Committee are asked to advise him (*a*) as to the precise educational and other purposes which the collections can best serve in the national interests; (*b*) as to the lines on which the collections should be arranged and developed, and possibly modified, so as more effectively to fulfil these purposes; and (*c*) as to the special characteristics which should be possessed by the new buildings which it is hoped will shortly be erected on the South Kensington site to house these collections, so as to enable the latter to be classified and exhibited in the manner most fitted to accomplish the purposes they are intended to fulfil.

INSTITUTE OF METALS.

The Council of the Institute of Metals have decided to initiate an annual series of May lectures. The first of these will take place in London on Tuesday, May 24, when Professor Gowland, F.R.S., Vice-President of the Institute, will deliver a lecture on "The Art of Working Metals in Japan," which will be illustrated by diagrams and lantern slides.

THE BURIED CITY OF VERULAMIUM.

According to the *Daily Chronicle*, within the next few months the excavation of the ancient Roman city of Verulamium will be begun by the Society of Antiquaries. The Society has made a considerable grant from its Research Fund, but the enterprise will be an expensive one, and the support of those interested is invited. The Earl of Verulam, who owns the land upon which the city was built, has given every facility to the Society. The site lies about a mile from the centre of St. Albans, just at the entrance to Gorhambury Park. In the centre of the site is the Church of St. Michael, the vicarage of which stands in the middle of what was the forum. A few fragments are to be seen here and there, but the Roman city lies for the most part buried under a considerable depth of soil. About sixty years ago, and again in 1869, the theatre of Verulamium was partly uncovered, and some fine frescoes, pavements, and marbles were found. It is the only Roman theatre known to exist in Britain, and its dimensions are almost exactly the same as those of the theatre at Pompeii.

AN UNDERCOAT FOR PAINTS.

The Fondin Company, of Battersea, has sent us a sample of the fluid called "Fondin." This is a kind of paint which is used on wood or plaster as an undercoat for oil paints and varnishes. It is also used on plaster ceilings before the usual coat of distemper is applied. The "Fondin" makes the plaster less porous, and, therefore, less liable to become stained by filtration of air through the ceiling. "Fondin" may also be added to water paints to make them dry with a waterproof surface.

PAINTINGS BY MR. CHARLES SIMS, A.R.A.

Mr. Charles Sims, A.R.A., has now completed the exhibition of paintings in oil and water-colour upon which he has been engaged for the last four years, and it will be opened at the Leicester Galleries, Leicester-square, on Saturday, April 16. Included in the collection will be the finished sketches for his well-known Academy pictures, "The Land of Nod," "An Island Festival," and "The Fountain," the latter of which was purchased under the funds of the Chantrey Bequest in 1908, and hangs in the National Gallery of British Art.

KING JOHN'S PALACE, HEATON PARK, NEWCASTLE-ON-TYNE.

As a public pleasure-ground, Heaton Park, Newcastle, is little more than thirty years old, but there is within that pleasant retreat the remains of an ancient edifice which dates back for centuries. We refer to the Camera of Adam of Jesmond, popularly caled "King John's Palace." It is an historic landmark amid modern surroundings, and, although it has stubbornly resisted the ravages of time, every now and then it shows signs of crumbling to decay, and preservative measures are adopted. Some fourteen years ago Mr. W. H. Knowles, of Newcastle, initiated a scheme for keeping the ruins intact, and just lately the walls have received further attention by the park authorities. The tops have been pointed and cemented. The "Palace" is attributed to Adam of Jesmond, who was a subfeudatory of the barony of Gaugy, and a staunch adherent of Henry III. Adam was Sheriff of Northumberland in 1262-4, and again in 1267, and, like other sheriffs of the time, he bore an "odious character for peculation and extortion." He also appropriated land which, after inquiry, he was obliged to relinquish. Among his benefactions may be mentioned one for the reparation of the Tyne Bridge, which was burnt in 1248. When Lord Armstrong presented the park to Newcastle Corporation, considerable repairs were carried out. It is conceivable that the building was originally enclosed by a strong wall, which in its turn was encompassed by a wide moat. The "Palace" was similar in character to the Black Gate of Newcastle, erected about 1250. It is thus satisfactory to know that the City Council is doing what it can to preserve from destruction the remaining fragment of a very interesting dwelling of the olden time.—*Newcastle Chronicle.*

Capital and Labour.

LEICESTER BUILDING TRADE DISPUTE.

On the 30th ult. a conference took place at the Leicester Town Hall between twelve representatives of the Leicester and District Building Trades' Employers' Association and eighteen representatives of the Carpenters and Joiners and the Bricklayers' and Labourers' Societies. Mr. Duncan Henderson acted as mediator and chairman. The questions in dispute are of a somewhat technical character. The employers desire an amendment of the working rules, particularly with regard to the district in which the Leicester conditions shall prevail, and the walking time. The workmen, on the other hand, put forward counter-proposals, comprising an advance in wages and a readjustment of the winter hours of labour. The conference sat for over four hours, but no agreement was arrived at, and the whole of the questions in dispute will now be referred to the local Conciliation Board.

List of Competitions, Contracts, etc.

For some Contracts still open, but not included in this List, see previous issues. Those with an asterisk (*) are advertised in this Number: Competitions, iv.; Contracts, iv. vi. viii. x.; Public Appointments, xviii. xix.; Auction Sales, xxvi.

Certain conditions, beyond those given in the following information, are imposed in some cases, such as: the advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bonâ-fide tender unless stated to the contrary.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

***** It must be understood that the following paragraphs are printed as news, and not as advertisements; and that while every endeavour is made to ensure accuracy, we cannot be responsible for errors that *may* occur.**

Competitions.

APRIL 29. — **Pontefract.** — COUNCIL SCHOOL.—The Education Authority invite competitive designs from architects practising in Yorkshire for the erection of an elementary school. Conditions of competition and plan of site can be obtained from Mr. W. Haddock, Town Clerk, on payment of 1*l.* 1s.

APRIL 30.—**Shardlow.**—SEWERAGE, ETC.—Shardlow R.D.C. desire to provide for the sewerage and sewage disposal of the contributory places of Spondon and Breaston, and they invite competitive schemes. Competitors to supply plans, sections, specification, detailed report, and estimate of the probable cost, which are to be delivered at the office of Mr. J. W. Newbold, Clerk to the Council, Becket-street, Derby.

MAY 31. — **Karachi.** — MUNICIPAL OFFICE. — **The Municipality of Karachi invite elevation designs and detailed plans and estimates for a new Municipal Office. For further particulars see advertisement in our issue of December 25.**

JUNE 15. — **Acton.** — NEW SCHOOLS. — The Acton U.D.C. Education Committee invite designs for new schools at Rothschild-road. For further particulars see advertisement in our issue of March 12.

AUGUST 23.—**Navan.**—COUNTY OFFICES.—Meath C.C. invite architects in Ireland to submit plans and specifications for the building of new County Offices at Navan. Copies of Sites Committee Report can be had on application from the Secretary, Meath C.C., Navan.

* NO DATE.—**Birkenhead.**—RECEIVING HOME.—The Guardians of the Birkenhead Union invite designs for proposed receiving home for children in Birkenhead. See advertisement in this issue for further particulars.

Contracts.

BUILDING.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

APRIL 11. — **Holmebridge.** — HALL. — Erection of parish hall, etc., at Holmebridge. Names to the architect, Mr. Josiah Auty, A.R.I.B.A., Union Bank-chambers, Morley.

APRIL 12.—**Cowlersley.**—BUNGALOW. — Works required in the erection of a bungalow at Cowlersley, Milnsbridge. Names to Messrs. J. B. Abbey & Son, architects, surveyors, etc., 34a, New-street, Huddersfield.

APRIL 12. — **Ilford.**—CONVENIENCES.—Ilford U.D.C. invite tenders for the erection of an underground convenience in Roden-street, Ilford. Plans, etc., may be obtained on application to Mr. H. Shaw, M.Inst.C.E., Surveyor to the Council, at the Town Hall, Ilford, on payment of a deposit of 2*l.* 2s.

APRIL 12. — **Lincoln.** — SCHOOL. — Building a new wing to the High School for Girls at Lincoln, and for the erection of a gymnasium in connexion with the school. Names to Messrs. W. Watkins & Son, architects, St. Edmund's-chambers, Lincoln.

APRIL 13.—**Glasgow.**—JOBBING WORKS.—The Corporation invite tradesmen lists of prices at which they will undertake to do jobbing work during the year:—(1) Mason work; (2) painter work; (3) plumber and gasfitter work. Schedules and forms of offer may be obtained on application to Mr. Wm. C. Menzies, the Manager, 22, King-street, City.

APRIL 13.—**Morley.**—WEAVING-SHED.—Erection of weaving-shed at Valley Mills, Morley, for the Valley Mills Company, Ltd. Plans, etc., may be seen, and quantities obtained, at Morley offices of Mr. T. A. Buttery, F.I.A.S., architect, Queen-street, Morley, and 1, Basinghall-square, Leeds.

APRIL 13.—**Rochdale.**—ACCUMULATOR ROOM, ETC.—The Electricity Committee invite tenders for the construction of an underground accumulator room and above-ground stores, etc., at their Electricity Works. Plans, etc., may be seen at the Electrical Engineer's Department, Dane-street, Rochdale, on application to Mr. C. C. Atchison, M.Inst.E.E., Engineer and Manager, from whom copies of the quantities may be obtained on the receipt of a deposit of 1*l.* 1s.

APRIL 13.—**Southowram.**—HOUSES.—Erection of eleven houses at Bank Top, Southowram, near Halifax. Plans, etc., will lay for inspection, and bills of quantities may be obtained, at offices of Mr. Lister Coates, A.R.I.B.A., architect, 10, Central-street, Halifax.

APRIL 14.—**Birchington.**—SCHOOL AND RESIDENCE.—Private school and residence at Birchington-on-Sea, Kent, for Messrs. B. V. C. Ransome and H. E. E. Jeston. Plans, etc., may be seen, and copy of bills of quantities obtained, upon payment of 1*l.* 1s., at the office of the architect, Mr. F. J. Cornford, Town Hall-buildings, Westgate-on-Sea.

APRIL 14.—**Gatley.**—VILLA.—Erection of villa in Oakwood-avenue, Gatley. For plans and particulars apply to Mr. W. R. Exley, architect, 2, Burgon-buildings, Fallowfield.

APRIL 14.—**Gillingham.**—TECHNICAL INSTITUTE.—Extending the Technical Institute, Green-street, for the T.C. Plans, etc., may be seen, and bills of quantities, etc., may be obtained from Mr. J. L. Redfern, A.R.I.B.A., Borough Surveyor, Council Offices, Gardiner-street, Gillingham, Kent, upon payment to Mr. F. C. Boucher, Town Clerk, Corporation Offices, Gillingham, of a deposit of 10s. 6d.

APRIL 14.—**Halifax.**—VILLAS.—Erection of a pair of semi-detached villas on the Greenroyd Estate, Skircoat, Halifax. Plans, etc., may be inspected, and bills of quantities obtained, at offices of Messrs. Clement Williams & Sons, architects, etc., Post-Office-buildings, Commercial-street, Halifax.

APRIL 14.—**Weymouth.**—SCHOOL.—Weymouth and Melcombe Regis Education Committee invite tenders for the erection of an elementary school for 270 boys at Weymouth, from drawings prepared by Messrs. Crickmay & Sons, architects 49, St. Mary-street, Weymouth, and Westminster.

APRIL 15. — **Sherwood.** — SCHOOL. — Nottingham Education Committee invite tenders for the erection of a new infants' school, Haydn-road, Sherwood. Plans may be seen, and copies of the specification, etc., obtained, on application to Mr. Frank B. Lewis, City Architect, Guildhall, on payment of a deposit of 2*l.* 2s.

APRIL 15.—**Tylorstown.**—COOKERY KITCHEN.—The Rhondda U.D.C. invite tenders for the erection of a cookery kitchen in the playground of the Tylorstown School. Plans, etc., may be seen, and bills of quantities, etc., obtained, at the office of the architect, Mr. Jacob Rees, Hillside Cottage, Pentre, upon the production of a receipt from the Accountant of the Council for the required deposit of 2*l.* 2s.

APRIL 16. — **Darlington.** — HOUSE.—Erection and finishing of a house on the Eryholme Estate, near Darlington, for Sir Thomas Wrightson, Bart. Drawings, etc., at offices of Messrs. Hoskins & Brown, architects, Court-chambers, Darlington.

APRIL 16.—**Edinburgh.**—PROPAGATING HOUSE.—The Magistrates and Council invite tenders for a propagating house proposed to be erected at the City Hospital, Comiston-road. Drawings, etc., may be seen at the office of Mr. James A. Williamson, A.R.I.B.A., City Chambers, from whom also schedules of quantities, etc., may be obtained on personal application.

APRIL 18.—**Bedlinog.**—SCHOOL.—Glamorgan C.C. invite tenders for new girls' department of the Council school at Bedlinog. Plans, etc., may be seen, and bills of quantities, etc., obtained, at the Treharris County Police-station, and at offices of Mr. T. Mansel Franklen, Clerk of the County Council, Glamorgan C.C. Offices, Westgate-street, Cardiff.

APRIL 18. — **Brynnau.** — SCHOOL ADDITIONS. — Glamorgan C.C. invite tenders for additions to the Brynnau Council School, near Llanharan. Plans, etc., may be seen, and bills of quantities, etc., obtained, at the Llanharan Police-station, and at the Glamorgan C.C. Offices, Westgate-street, Cardiff.

APRIL 18.—**Caerphilly.**—SCHOOL.—Glamorgan C.C. invite tenders for new higher elementary school at Caerphilly. Plans may be seen, and specification, etc., obtained, for Work No. 3, at Caerphilly Police-station, and at Glamorgan C.C. Offices, Westgate-street, Cardiff.

APRIL 18. — **Dinas Powis.** — COOKERY-ROOM. — Glamorgan C.C. invite tenders for cookery-room at Brynnau Council school, near Llanharan. Plans, may be seen, and bills of quantities, etc., obtained, at the Dinas Powis Council School and at Glamorgan C.C. Offices, Westgate-street, Cardiff.

APRIL 18.—**Hengoed.**—LATRINES.—Glamorgan C.C. invite tenders for new latrines at the Council School at Hengoed. Plans may be seen, and specifications, etc., obtained, at the Bargoed Police-station and at Glamorgan C.C. Offices, Westgate-street, Cardiff.

APRIL 18.—**Manchester.**—SANITARY ALTERATIONS.—The Corporation invite tenders for the execution of sanitary alterations in connexion with the following premises, viz.:—Nos. 3-15, Bank-street, and 25, Great Jackson-street, Hulme; Nos. 2-8, Rex-street, Hulme. Forms of tender, etc., may be obtained, and plans seen, on application to Mr. H. Prescott, manager of the Drainage Department.

APRIL 18. — **Oldcastle.** — REPAIRS.—The Board of Guardians invite tenders for the carrying out of certain repairs to the fireplaces, floors, etc., of the various wards of the Workhouse and Fever Hospital. Specification, prepared by Mr. Michael Grace, jun., the Board's Engineer, can be seen at Union Offices, Oldcastle Workhouse.

APRIL 18.—**Port Talbot.**—INFANTS' DEPARTMENT.—Glamorgan C.C. invite tenders for new infants' department of the Council school at Taibach, Port Talbot. Plans, etc., may be seen, and bills of quantities, etc., obtained, for Work No. 2, at the Port Talbot Police-station, and at Glamorgan C.C. Offices, westgate-street, Cardiff.

APRIL 18.—**Stretford.**—SCHOOL.—Stretford Education Committee invite tenders for the erection of a public elementary school at Gorse Hill, Stretford. Plans may be seen, and bill of quantities obtained, on application to the architect, Mr. Frank W. Mee, F.R.I.B.A., 32, Victoria-street, Manchester, on payment of a fee of 2*l.* 2s.

APRIL 19.—**Cwmgorse.**—CHAPEL.—Erection of a Congregational chapel at Cwmgorse. Plans, etc., may be seen with Mr. T. Howell, postmaster, Cwmgorse; or at office of Mr. W. Beddoe Rees, architect, 3, Dumfries-place, Cardiff, where bills of quantities may be obtained.

APRIL 20. — **Rochdale.** — HIGH LEVEL ROAD AND COAL STORE IN FERRO-CONCRETE.—The Gas and Electricity Committee of the Corporation invite tenders for the construction in ferro-concrete of a high level road and coal store in connexion with their Gasworks. Plans, etc., may be seen, and conditions of tender obtained, on application to Mr. T. Banbury Ball, the Manager at the Gasworks, Dane-street, Rochdale, from whom any further information may be obtained.

APRIL 20.—**Royton.**—SHELTERS, ETC.—The U.D.C. of Royton invite tenders for shelters, asphalting of walks, drainage, etc., in connexion with the Park and Recreation Ground, Radcliffe-street. Specification, etc., may be obtained, and plans inspected, at the office of the architect, Mr. Ernest Woodhouse, F.R.I.B.A., 88, Mosley-street, Manchester.

APRIL 20. — **Sedgefield.** — CEMETERY LODGE. — Sedgefield Burial Joint Committee invite tenders for the new cemetery lodge at Sedgefield village, co. Durham. Plans, etc., at the office of Mr. T. W. T. Richardson, M.S.A., architect and surveyor, 57, High-street, Stockton-on-Tees.

APRIL 21. — **Haynford.** — HOUSE.—Erection of a dwelling-house at Haynford, Norwich. For specifications apply to Mr. Wm. Roberts, Haynford.

APRIL 22. — **Pontypool.** — ABATTOIR.—Pontypool U.D.C. invite tenders for the erection of a public abattoir, stabling, etc. Drawings, etc., may be seen, and forms of tender, etc., obtained, on application at the office of Mr. D. J. Lougher, Architect and Surveyor, Bank-chambers, Pontypool, upon depositing the sum of 2*l.* 2s.

APRIL 25.—**Bedwas.**—HOUSES.—Erection of fourteen semi-detached houses at Bedwas, for the Tydfil-road Building Club. Plans, etc., may be seen at the Blackwood office of Mr. Ralph Simmonds, architect and surveyor, Blackwood, or at Bedwas by appointment.

APRIL 25. — **Seaforth.** — SCHOOL.—The U.D.C. of Waterloo-with-Seaforth invite tenders for the erection of a secondary and technical school in Cambridge-road, Seaforth. The plans may be seen, and bills of quantities obtained, at the office of the County Architect, Mr. Henry Littler, No. 16, Ribblesdale-place, Preston, by payment of a deposit of 3*l.*

* APRIL 26.—**Birkenhead.**—SORTING OFFICE.—The Commissioners of H.M. Works and Public Buildings invite tenders for erection of a sorting office at Rock Ferry, Birkenhead. See advertisement in this issue for further particulars.

* APRIL 27.—**Crewe.**—SORTING OFFICE.—The Commissioners of H.M. Works and Public Buildings invite tenders for a sorting office at Crewe Station. See advertisement in this issue for further particulars.

APRIL 30.—**Falmouth.**—ADDITIONS, ETC.—Proposed additions and alterations to the Falmouth Grammar School. The Governors invite tenders for this work. Plans, etc., may be seen by appointment at the school, or at the office of the architect, Mr. Sampson Hill, Green-lane, Redruth.

* APRIL 30. — **Goodmayes.** — ADDITIONS, ETC.—The West Ham B.C. invite tenders for alterations and additions to Little Heath House, Goodmayes Asylum. See advertisement in this issue for further particulars.

NO DATE.—**Bewcastle.**—HOUSE.—Tenders are invited for the various trades in the erection of a stone dwelling-house at Low Sowerbies, Bewcastle. Plans, etc., may be seen at the house of Mr. John Gosling, Redgate Head, Bewcastle, Newcastleton.

NO DATE.—**Earl Soham.**—MOTOR-HOUSE.—Building a motor-house at the Elms. Particulars on application to Mr. H. Groome, Earl Soham.

NO DATE. — **Exeter.** — REBUILDING. — Rebuilding Nos. 175 and 176, Sidwell-street, Exeter, for Mr. James Hammett. Drawings, etc., may be seen at office of Mr. James Jerman, F.R.I.B.A., architect and surveyor, 1, Bedford-circus, Exeter.

NO DATE. — **Leeds.** — SLATERS' AND PLASTERERS' WORK.—Slaters' and plasterers' work required in the erection and completion of the Olympia Club, Harehills Corner, Leeds. For particulars apply on the site.

NO DATE.—**Shepley.**—HOUSES.—Erection of three houses at Kid Royd, Shepley, for Mr. Robert

BUILDING—*continued.*

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

Ingham. Apply for quantities to Mr. J. T. Chambers, M.R.San.I., architect, Shepley.

* NO DATE. — **Walton-on-Naze.** — SCHOOL.—The Essex Education Committee (Tendring District Subcommittee) invite tenders for new public elementary school at Walton-on-Naze. See advertisement in this issue for further particulars.

ENGINEERING, IRON, AND STEEL.

APRIL 14.—**Oldbury.**—GAS SERVICE.—The Oldbury U.D.C. Education Committee invite tenders for the supply and fixing of gas service at Rounds Green Council Schools. Plans, etc., may be inspected, and form of tender obtained, at the office of Mr. A. Long, architect, West Bromwich, on production of receipt for 1*l.* deposit paid to Mr. Sydney Vernon, Secretary, Public Buildings, Oldbury.

APRIL 15. — **Dublin.**—SWITCHES.—The Lighting Committee of the Corporation of Dublin invite tenders for the supply and erection of triple pole automatic oil break switches on the existing Ferranti-make switchboard at their Fleet-street Distributing Station. Specifications, etc., can now be obtained from the City Electrical Engineer, Fleet-street, Dublin, on payment of 1*l.* 1*s.* each.

APRIL 16.—**Dover.**—ELECTRIC CRANE.—The Dover Harbour Board invite tenders for the construction, etc., of an electric-worked jib crane. Printed forms of conditions of contract, specification, etc., can be obtained upon application at office of Mr. Martyn Mowll, Register, Dover Harbour Board, Castle-street, Dover, on payment of 5*s.* for each copy.

APRIL 18.—**Dublin.**—RAILS, ETC.—The Directors of the Great Northern Railway Company (Ireland) invite tenders for the supply of 2,000 tons bull-head rails, 55 tons fish-plates, and 1,400 tons cast-iron chairs. Specifications, etc., can be obtained from the Secretary, Mr. T. Morrison, Amiens-street Terminus, Dublin.

APRIL 18. — **Halifax.** — ROTARY CONVERTER.—The Tramways and Electricity Committee of the Halifax Corporation invite tenders for the supply and erection of one 300 kw. rotary converter, transformers, and switchboards. Specifications, etc., may be obtained on application to Mr. W. M. Rogerson, M.Inst.E.E., General Manager, at his office, Foundry-street, Halifax, upon payment of the sum of 10*l.*

APRIL 20.—**Rochdale.**—HIGH-LEVEL ROAD AND COAL-STORE IN FERRO-CONCRETE.—The Gas and Electricity Committee invite tenders for the construction in ferro-concrete of a high-level road and coal-store in connexion with their gasworks. Plans, etc., may be seen, and conditions of tender obtained, on application to Mr. T. Banbury Ball, the Manager, at the Gasworks, Dane-street, Rochdale.

APRIL 22.—**Walthamstow.**—SWITCHBOARD GALLERY.—Walthamstow U.D.C. invite tenders for the supplying and fixing of a switchboard gallery at Electricity Generating Station, Priory-avenue, Walthamstow. Plans, etc., may be inspected at the office of Mr. G. W. Holmes, A.M.Inst.C.E., Engineer to the Council, Town Hall Annexe, Walthamstow. Forms of tender may be obtained on depositing in cash the sum of 1*l.* 1*s.*

APRIL 23.—**Stroma.**—PIER WORKS.—The C.C. of Caithness invite tenders for the construction of additional works to be executed at Stroma South Pier. Copies of the plans, etc., may be seen at the office of Mr. James Young, County Clerk, County Clerk's Office, Thurso.

MAY 2. — **Littleborough.** — ELECTRICITY SUPPLY.—The Littleborough U.D.C. invite tenders for the supply and laying of electric cables and the supply and erection of plant. Copies of the specification, etc., may be obtained from Mr. George H. Wild, Clerk to the Council, Council Offices, Littleborough, on depositing a 5*l.* Bank of England note. The works are to be carried out in accordance with plans and specifications which may be seen at, but not obtained from, the offices of Messrs. Hawtayne & Zeden, 9, Queen-street-place, London, E.C.

NO DATE.—**Darton.**—SINKING SHAFTS.—Sinking of two pit shafts for Fountain & Burnley, Ltd., and George Fountain & Sons, Ltd., Darton, near Barnsley. Sections, specifications, etc., may be seen on application to the Manager, Woolley Colliery, Darton.

NO DATE. — **Howden.** — RIVER BANK.—Repairing 100 ft. of river bank in front of the Sloop Inn, Barmby Marsh, near Howden. Mr. A. R. Lake, solicitor, King-street, Wakefield.

MISCELLANEOUS.

APRIL 11. — **Warrenpoint.** — STEAM ROLLING.—The Warrenpoint U.D.C. invite tenders for supplying and rolling-in of 2,000 cubic yds. of broken stone. Specification can be seen, and form of tender obtained, at the Town Clerk's Office, Warrenpoint; or with Mr. Rowland Wade, B.E., South Lodge, Newry, Urban Surveyor.

APRIL 12.—**Margate.**—CARTING.—Tenders are invited for excavating and carting away the chalk, earth, and other material at the Corporation's low service reservoir in rear of Milton-road. Further particulars can be obtained on application at the Borough Surveyor's Office, 13, Grosvenor-place, Margate.

APRIL 13. — **Brighton.** — HAULAGE. — Haulage in connexion with the Tarmac Company's contract for the reconstruction of King's-road and Grand Junction-road, Brighton. Tender forms, etc., can be obtained from Mr. D. G. Comyn, Manager and Secretary, Tarmac, Ltd., Ettingshall, Wolverhampton.

APRIL 13. — **Howden.** — LEADING STONE.—Howden R.D.C. invite tenders for leading stone from the different stations and landings. Particulars, etc., with approximate quantities, may be had from Mr. J. Anderson, District Surveyor, Howden.

APRIL 15.—**Carlisle.**—LEAD GUTTER.—The Carlisle Board of Guardians invite tenders for new lead gutters on main building and schoolhouse at Harraby Hill House. Specification can be seen and all information obtained at the offices of Mr. George Armstrong, architect, 24, Bank-street, Carlisle.

APRIL 15.—**Prestwich.**—TILING, ETC.—The Committee of Visitors of the County Lunatic Asylum, at Prestwich, Manchester, invite tenders for the floor and wall tiling, composition flooring, and patent roof glazing required in the erection of new kitchens, stores, and bakery for the Administrative Department at the Asylum. Bills of quantities can be obtained from the architect, Mr. Thomas Chadwick, A.R.I.B.A., of 16, Princess-street, Manchester, where the plans may be seen.

* APRIL 19. — **London.** — SCHOOL DESKS. — The London C.C. invite tenders for supply and delivery of school desks. See advertisement in this issue for further particulars.

APRIL 20.—**Cudworth.**—STEAM ROLLER.—Cudworth U.D.C. invite tenders for a steam road roller. Specifications and tenders for a 12-ton compound-type roller, fitted with scarifier, to be sent to Mr. W. E. Raley, solicitor, Clerk to the Council, Regent-street, Barnsley.

APRIL 22.—**Thirsk.**—CARTING.—Thirsk R.D.C. invite tenders for the leading of stone. For specification, etc., apply at the office of the Surveyor, Thirsk.

NO DATE.—**York.**—CARTING.—Tenders are invited for carting of timber, etc., required on the showyard, Yorkshire Agricultural Society, Leeds Show, 1910. Particulars on application to Mr. Fredk. Pottage, clerk of works, Blake-street, York.

PAINTING, etc.

APRIL 11. — **Liverpool.** — PAINTING, ETC.—Tenders wanted for painting and decorating the inside and outside of the Liverpool Hospital for Cancer and Skin Diseases, 1, Myrtle-street. Mr. A. N. Talbot, Secretary.

APRIL 11. — **Toxteth Park.** — PAINTING. — The Guardians invite tenders for the painting and general repairs, etc., to the exterior of the Workhouse, Smithdown-road. Specifications can be had upon application to the Master at the Workhouse.

APRIL 13.—**Langho.**—PAINTING.—The Committee of the Lancashire Inebriates' Reformatory, Langho, near Blackburn, invite tenders for painting outside the Reformatory buildings, lodges, cottages, iron rails, and gates. Specification to be obtained from Mr. Harcourt E. Clare, Clerk to the Board, County Offices, Preston.

APRIL 16. — **Heckingham.** — PAINTER'S WORK.—Loddon and Clavering Guardians invite tenders for the painter's work at Workhouse at Heckingham (two miles from Loddon). A specification can be inspected at the Workhouse.

APRIL 16.—**Oxford.**—PAINTING.—The Committee of Visitors of the County Asylum, Littlemore, invite tenders for the outside painting of the front of the Asylum buildings. Full particulars can be obtained from the Engineer on application at the Asylum.

APRIL 21. — **Rainhill.** — PAINTING. — The Visiting Committee of Lancashire Asylums Board, County Asylum, Rainhill, invite tenders for painting all external wood and iron work at the annexe buildings, etc. Specification may be seen on application to Mr. Jas. Gornall, Clerk and Steward, Clerk's Office, Rainhill Asylum.

APRIL 23. — **Ely, Cardiff.** — PAINTING. — The Guardians invite tenders for cleaning, colouring, and painting children's homes at headquarters, Ely, and in Cardiff and Penarth. Specification, etc., may be obtained from Mr. Arthur J. Harris, Clerk, Union Offices, Queen's-chambers, Cardiff.

APRIL 25. — **New Malden.** — PAINTING, ETC.—The Guardians of the Kingston Union invite tenders for cleaning, distempering, and painting at the Central Homes for Children, Kingston-road, New Malden. Specification can be obtained on application to Mr. Chas. W. Dash, Clerk, Union Offices, Coombe-road, Kingston-on-Thames.

ROADS, SANITARY, AND WATER WORKS.

APRIL 11.—**Ilford.**—MAKING-UP.—Ilford U.D.C. invite tenders for making-up of Eynsford-road (part of), Staines-road, and Harrow-road. Plans, etc., may be seen, and form of tender, etc., obtained, on application to Mr. H. Shaw, M.Inst.C.E., Engineer and Surveyor to the Council, Town Hall, Ilford, on payment of a deposit of 2*l.* 2*s.*

APRIL 11.—**Leeds.**—PAVING, ETC.—The Highways Committee invite tenders for the paving and flagging of private streets. Drawings may be seen at the City Engineer's Office, Municipal Buildings. Forms of tender, etc., may be obtained on application at the Highways Office, 155, Kirkstall-road, Leeds.

APRIL 11. — **Whickham.** — ROAD WORKS. — The Whickham U.D.C. invite tenders for the execution of certain excavating, levelling, penning, kerbing, channel cementing, paving, etc., at East Back Fowler-gardens, etc. Plans, etc., may be seen by appointment, and bills of quantities obtained, from the Council's Surveyor, Mr. J. R. Renton, Council Offices, Whickham.

APRIL 12.—**Ilford.**—CULVERT, NEW ROAD.—Ilford U.D.C. invite tenders for taking down a portion of the old culvert over stream at the junction of New-road and Green-lane, Ilford, and rebuilding same. Plans, etc., may be obtained on application to Mr. H. Shaw, M.Inst.C.E., Surveyor to the Council, at the Town Hall, Ilford, on payment of a deposit of 2*l.* 2*s.*

APRIL 12. — **Port-Glasgow.**—CAUSEWAYING.—The T.C. of Port-Glasgow invite offers for (1) causeways ing No. 3, New-street, off Bay-street; and (2) drainage works at Bogiewoode Burn. Schedules for each contract can be obtained from Mr. Andrew Paton, Town Clerk, Port-Glasgow. A fee of 10*s.* 6*d.* to be paid for each schedule.

APRIL 12. — **Swansea.** — STREET WORKS.—The Corporation invite tenders for the execution of private street works in Cecil-street, Manselton. Plans, etc., may be seen at the office of the Borough Surveyor, 13, Somerset-place.

APRIL 13.—**Morley.**—SEWER.—The Highways Committee invite tenders for the laying of about 190 lineal yds. of 9-in. earthenware pipe sewer in the Leeds and Elland road, Churwell. Plans, etc., may be seen, and copies of the bill of quantities, etc., obtained, on application to Mr. W. E. Putman, A.M.Inst.C.E., Borough Engineer and Surveyor, Town Hall, Morley.

APRIL 14.—**Lanark.**—PIPES.—The District Committee of the Upper Ward of Lanarkshire invite offers for providing and laying about 1,000 yds. of 12-in. or, in their option, 14-in. diameter fireclay pipes, from a point south of Law Junction Railway Station to the Garrion Burn. Plans may be seen at the office of the engineers, Messrs. Warren & Stuart, 94, Hope-street, Glasgow, from whom copies of the specification, etc., may be obtained on payment of 10*s.*

APRIL 14. — **Youghal.** — STAUNCHING RESERVOIR.—The Youghal U.D.C. invite tenders for work in connexion with the staunching of the service reservoir at Cork Hill, Youghal, in accordance with plans, etc., prepared by their Engineer, Mr. W. H. Hill, jun., M.Inst.C.E., which may be inspected at the office of the Urban Council, Town Hall, Youghal, or that of the Engineer, 28, South-mall, Cork.

APRIL 18.—**Sunbury-on-Thames.**—KERBING, ETC.—The U.D.C. invite tenders for the supplying and laying of about 1,600-ft. run of 12-in. by 4-in. blue Pennant bunched kerbing. They also invite tenders for the supply and delivery only of Derbyshire limestone tar paving. Specifications, etc., may be obtained on application to Mr. Harold F. Coales, A.M.Inst.C.E., the Surveyor to the Council.

APRIL 19.—**Barking.**—ROAD WORKS.—The U.D.C. invite tenders for the surface-water draining, forming, making-up, metalling, channelling, kerbing, lighting, fencing, etc., of a new road, about 440 yds. in length, to be known as Abbey-road. Plans, etc., can be seen, and specification, etc., obtained, upon application to Mr. C. F. Dawson, Surveyor to the Council, Public Offices, Barking.

APRIL 21.—**Lamberhurst.**—DRAINAGE.—Tonbridge R.D.C. invite tenders for drainage works in the village of Lamberhurst. Plans, etc., may be seen, and bill of quantities, etc., obtained, on application at the office of Mr. Frank Harris, Engineer and Surveyor to the Council, Broadway, Southborough, Tunbridge Wells, on the deposit of 1*l.* 1*s.*

APRIL 26.—**Gosforth.**—CARRIAGEWAYS, ETC.—Gosforth U.D.C. invite tenders for carriageway and footway construction. All particulars may be obtained from Mr. George Nelson, A.M.Inst.C.E., Engineer and Surveyor to the Council, Council Chambers, High-street. A deposit of 2*l.* 2*s.* is required for quantities.

NO DATE.—**Ponteland.**—ROADS.—Several miles of road-making on Darras Hall Estate, Ponteland. Names and addresses to Messrs. Watson & Scott, 48, Dean-street, Newcastle.

NO DATE.—**Rochdale.**—REPAVING.—Labour in repaving, stone setts, over sewer trenches, near Rochdale. Apply Messrs. Abraham Graham & Sons, contractors, Longroyd Bridge, Huddersfield.

STONES, MATERIAL, AND STORES.

APRIL 11. — **Edinburgh.** — MATERIALS.—The Edinburgh and District Water Trustees invite offers for the supply of materials and cartage work. Specifications can be obtained at the office of the Works Department, 12, St. Giles-street, Edinburgh.

APRIL 11. — **Lancashire.** — GRANITE.—Lancashire C.C. invite tenders for the supply of about 10,000 tons of granite macadam. Forms of tender, etc., can be obtained on application to Mr. W. H. Schofield, County Surveyor, County Offices, Preston.

APRIL 11. — **Rochdale.** — STORES.—The Tramways Committee invite tenders for stores for the year ending March 31, 1911. Further particulars, etc., may be had on application to the General Manager, Mr. J. S. D. Moffet, Tramway Offices, Mellor-street, Rochdale, on payment of the sum of 5*s.* for each form of tender.

APRIL 11.—**Whickham.**—MATERIALS.—The Whickham U.D.C. invite tenders for the supply of whinstone, limestone, and slag. Forms of tender may be obtained on application to the Council Offices, Whickham.

APRIL 11.—**Whickham.**—MATERIALS.—The Whickham U.D.C. invite tenders for the execution of certain excavating, etc., works at Millfield-road, etc. Plans, etc., may be seen by appointment, and bills of quantities obtained from the Council's Surveyor, Mr. J. B. Renton, Council Offices, Whickham.

APRIL 11. — **Woolwich.** — GRANITE SPALLS. — The Guardians of the Woolwich Union invite tenders for the supply of 300 tons of Guernsey granite spalls for breaking. Mr. Tom Cutter, Clerk to the Guardians, Clerk's Office, Workhouse, Plumstead.

APRIL 12.—**Tipton.**—PIPES.—Tipton U.D.C. invite tenders for the supply of stoneware drain-pipes. A copy of the specification, form of tender, etc., may be obtained on application to Mr. Wm. H. Jukes, M.E., Engineer and Surveyor, Surveyor's Offices, Public Offices, Tipton, upon payment of 1*l.* deposit.

APRIL 14.—**Brumby.**—SLAG.—Brumby and Frodingham U.D.C. invite tenders for about 1,000 tons of slag. Specifications, etc., may be had on application to Mr. Joe Green, Surveyor, Council Office, New Frodingham, Scunthorpe, Lincolnshire.

APRIL 14. — **London.** — MATERIALS. — The Great Indian Peninsula Railway Company invite tenders for the supply of stores. Specifications, etc., may be obtained at office of Mr. J. I. Berry, Secretary, 48, Copthall-avenue, London, E.C., on payment of the fee for the specification, which payment will not be returned.

APRIL 15.—**Brumby, etc.**—WHINSTONE.—Brumby and Frodingham U.D.C. invite tenders for about 1,000 tons of whinstone, to be delivered at Gunness and Frodingham Stations (G.C.R.). Specifications, etc., may be had on application to Mr. Joe Green, Surveyor, Council Offices, New Frodingham, Scunthorpe, Lincolnshire.

APRIL 15—**Preesall-with-Hackinsall.**—STORES.—The U.D.C. invite tenders for the supply and delivery of materials for a period of twelve months.

STORES, etc.—*continued.*

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

Further particulars, etc., may be obtained by application, accompanied by a stamped addressed foolscap envelope, to the Council's Surveyor, Mr. Francis E. Boaz, A.M.Inst.S.E.

APRIL 16.—**Glasgow.**—STORES.—The Corporation invite tenders for the supply of materials, etc., as may be required by the Water Department for one year. Specifications, etc., may be obtained on application to Mr. J. R. Sutherland, Water Engineer, 45, John-street, Glasgow.

APRIL 16.—**Headington.**—SUPPLY OF HARTSHILL OR OTHER APPROVED STONES, AND CARTING OF SAME.—The R.D.C. invite tenders for above. Particulars of places and quantity can be obtained from the District Surveyor, Mr. A. Walker, Windmill-road, New Headington.

APRIL 18.—**Wigton.**—DRAINAGE AND WATER SUPPLY MATERIALS.—Tenders are invited by the Guardians for the supply of materials in connexion with the Workhouse drainage scheme and water supply. Particulars, etc., may be seen at office of Mr. J. F. W. Ritson, Clerk to the Guardians, 4, West-street, Wigton.

APRIL 20.—**London.**—DEAL, ETC.—The Guardians of the Poor of the Parish of St. Giles, Camberwell, invite tenders for the supply of 20 fathoms of best deal and batten ends, to be delivered at their Workhouse, Gordon-road, Peckham. Forms of tender, etc., may be obtained upon application at office of Mr. Charles S. Stevens, Clerk to the Guardians, 29, Peckham-road, S.E.

APRIL 22.—**Thirsk.**—WHINSTONE AND SLAG.—Thirsk R.D.C. invite tenders for the supply of about 1,000 tons of whinstone and 6,000 tons of slag. Form of tender can be obtained from Mr. R. R. Wright, Highway Surveyor, Thirsk, on receipt of stamped addressed foolscap envelope.

APRIL 25.—**Wallasey.**—MATERIALS.—Wallasey U.D.C. Ferries Committee invite tenders for the supply for a period of twelve months of articles, being the principal stores required for use on steamers and ferries. Further particulars, with printed form of tender, may be obtained on application at the Manager's Office, Seacombe Ferry.

APRIL 28.—**Chatham.**—MATERIALS.—The T.C. invite tenders for the supply of broken granite or other hard stone, and surface picked flints. Specification, etc., can be obtained on application at the Borough Surveyor's Office, Town Hall, Chatham.

NO DATE.—**Great Yarmouth.**—PLATES.—The Great Yarmouth Port and Haven Commissioners invite tenders for the supply of plate pile toes, land ties, plates, and bolts, as per specification. Forms of tender, etc., on application, accompanied by a stamped and directed envelope, of Mr. J. Tolver Waters, Clerk of the Commissioners 2, Quay, Great Yarmouth.

NO DATE.—**Great Yarmouth.**—TIMBER.—The Great Yarmouth Port and Haven Commissioners invite tenders for the supply of English oak, elm, and larch trees; and for greenheart, sawn pitch-pine, Memel or Dantzic balks, and Memel deals. Specifications on application, accompanied by a stamped and directed envelope, from Mr. J. Tolver Waters, Clerk of the Commissioners, 2, Quay, Great Yarmouth.

Public Appointments.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in
*ARCHITECT'S ASSISTANT	Kent Education Committee	2*l.* 2*s.* week	April 11
*CLERK OF WORKS	East & West Molesey U.D.C.	2*l.* 10*s.* per week	April 14
*INSTCTORS. IN WORKSHOP DRAWING & CALCULATNS.	London C.C.	See advertisement in this issue	April 25

Auction Sales.

Nature and Place of Sale.	By whom Offered.	Date of Sale.
*DEALS, BATTENS, BOARDS, TIMBER, ETC.—Great Hall, Winchester House, E.C.	Churchill & Sim	April 13
*FREEHOLD LAND, BOW—At the Mart	C. C. & T. Moore	April 14
*MATERIALS AND FITTINGS, WESTMINSTER, S.W.—On the Premises	Horne & Co.	April 14
*BLDG. PLANT, WAGONETTE, ETC., TWICKENHAM—Yard, adj. Clara Villa, Twickenham	Sidney A. Goatly	April 14
*BUILDING SITE, SHAFTESBURY-AVENUE, W.—At the Mart	Pitts & Jordan	April 14
*FREEHOLD BUILDING ESTATE, PALMER'S GREEN, N.—At the Mart	Driver, Jonas, & Co.	April 19
*MACHINERY, PLANT, STOCK, ETC., WESTMINSTER BDGE. RD., S.E.—On the Premises	Fuller, Horsey, Sons, & Cassell	April 20
*COLLIERY PLT. & BRKMKG. MCHRY., BALLYVOY & WHITE MINES—On the Premises	Wheatley, Kirk, Price, & Co.	April 21
*FREEHOLD PROPERTY, BARKING—At the Mart	Protheroe & Morris	April 22

Patents.

APPLICATIONS PUBLISHED.*

5,314 of 1909.—Godfrey Benington Johnson: Apparatus for producing corrugated metal sheets for roofing and other purposes.

5,526 of 1909.—David Chattaway: Bolt fastening for connecting the overlapping ends of corrugated metal sheets and the like.

5,574 of 1909.—Robert Zeiller: Moulds for casting buildings and the like.

5,590 of 1909.—Cari August Teske: Joints for tubular structures.

6,446 of 1909.—Joseph Major: Machine for bending pipes and the like.

8,789 of 1909.—Amos Lockwood: Nonslip window blind or light regulator.

9,481 of 1909.—Joseph Roberts: Stone-working machinery.

10,379 of 1909.—George Sollitt: Venetian blinds.

10,531 of 1909.—James Stewart Spiers, Maria Carstairs Spiers, Mary Stewart Jackson, and William McNaught: Planes for wood-working purposes.

10,548 of 1909.—Edgar Rouse Sutcliffe: Moulds for use in the manufacture of concrete blocks and the like.

11,967 of 1909.—Henry Sutcliffe: Hinges for water-closet seats.

12,647 of 1909.—John Jesse James: Fastenings for cupboard, cabinet, and like doors or closures, windows, and other hinged or folding articles.

14,845 of 1909.—Charles Galton: Fastenings for window casements or the like, or for similar purposes.

15,042 of 1909.—Thomas Russell Hutchinson and Lawson's Nonconducting Composition, Ltd.: Tiles.

17,430 of 1909.—Milo E. Howe: Chimneys.

20,943 of 1909.—Fritz Baecker: Drum for screening or straining small coal and other materials.

21,673 of 1909.—Charles Harold Campbell Farmer: Metal bars or rods for reinforced concrete constructions.

23,595 of 1909.—Ernest Rathbone Mullineaux, Thomas Mullineaux, and William Walton Mullineaux: Plasters.

27,786 of 1909.—George Lotze (Eduard Lotze): Door locks.

* All these applications are in the stage in which opposition to the grant of a patent upon them can be made.

1,849 of 1910.—Mary Lizzie Green: Slab or tile for use in constructing exterior walls or interior partitions or the like.

4,579 of 1910.—William John Swain: Reinforcements for concrete structures.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

March 30.—By WALLER & KING (at Southampton).

Southampton.—42, Avenue-rd., f., p.	£410
52 and 54, Richmond-rd., f., w.r. 54*l.* 10*s.*	505
March 31.—By FLEURET, ADAMS, & HAXELL.	
Stepney.—Commercial-rd. East, The Wheatsheap p.h., f., y.r. 70*l.*	2,350
By WORSFOLD & HAYWARD (at Dover).	
Dover.—The Buckland Nursery, 1 a. 0 r. 18 p., f., p.	660
Folkestone-rd., Swiss Cottage, u.t. 15 yrs., g.r., etc., 3*l.* 5*s.* 6*d.*, p.	330
43, Lascelles-rd., f., w.r. 20*l.* 16*s.*	235

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; p. for possession; e.r. for estimated rental; w.r. for weekly rental; q r. for quarterly rental; y.r. for yearly rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; la. for lane; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; av. for avenue; gdns. for gardens; yd. for yard; gr. for grove; b.h. for beerhouse; p.h. for public-house; o. for offices; s. for shops; ct. for court.

PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.**

BRICKS, &c.

Per 1000 Alongside, in River. £ s. d.

Best Stocks 1 9 0

Per 100), Delivered at Railway Depôt.

	£ s. d.		£ s. d.
Picked Stocks for Facings	2 10 0	Headers	10 7 6
Flettons	1 7 0	Quoins, Bullnose, and Flats	14 7 6
Best Fareham Red	3 12 0	D'ble Stretchers	16 7 6
Best Red Pressed Ruabon Facing	5 0 0	Double Headers	13 7 6
Best Blue Pressed Staffordshire	3 15 0	One Side and two Ends	17 7 6
Do. Bullnose	4 0 0	Two Sides and one End	18 7 6
Best Stourbridge Fire Bricks	3 14 0	Splays & Squints	15 17 6
GLAZED BRICKS.		Best Dipped Salt Glzd. Str'tch'rs	10 17 6
Best White and Ivory Glazed Stretchers	10 17 6	Headers	10 7 6
		Quoins, Bullnose, and Flats	14 7 6
		D'ble Stretchers	16 7 6

BRICKS, &c. (*continued*).

Per 1000, Delivered at Railway Depôt.

	£ s. d.		£ s. d.
Double Headers One Side and two Ends	13 7 6 / 17 7 6	Two Sides and one End	18 7 6
		Splays & Squints	15 17 6

Second Quality White and Dipped Salt Glazed, £1 5s. per 1000 less than best.

	s. d.	
Thames and Pit Sand	6 6	per yard delivered.
Thames Ballast	5 0	,, ,,
Best Portland Cement	28 0	per ton, ,,
Best Ground Blue Lias Lime	19 0	,, ,,

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime ..... 11s. 6d. per yard, delivered.
Stourbridge Fireclay in sacks 27s. 0d. per ton at rly. dpt.

STONE.

Per Ft. Cube. s. d.

BATH STONE—delivered on road waggons, Paddington Depôt	1 6½
Do. do. delivered on road waggons, Nine Elms Depôt	1 8½
PORTLAND STONE (20 ft. average)—Brown Whitbed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2 1
White Basebed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2 2½

Per Ft. Cube, Delivered at Railway Depôt.

	s. d.		s. d.
Ancaster in blocks	1 10	Red Corsehill in blocks	2 2
Beer in blocks	1 6	Closeburn Red Freestone	2 0
Groenshill in blocks	1 10	Red Mansfield Freestone	2 4
Darley Dale in blocks	2 4		

YORK STONE—*Robin Hood Quality.*

Scappled random blocks	2 10

Per Ft. Super., Delivered at Railway Depôt.

6 in. sawn two sides landings to sizes (under 40 ft. super.)	2 3 / 2 6
6 in. rubbed two sides ditto, ditto	0 11½
3 in. sawn two sides slabs (random sizes)	0 7½
2 in. to 2½ in. sawn one side slabs (random sizes)	0 6
1½ in. to 2 in. ditto, ditto	

Per Ft. Cube, Delivered at Railway Depôt.

Scappled random blocks	3 0

Per Ft. Super., Delivered at Railway Depôt.

6 in. sawn two sides landings to sizes (under 40 ft. super.)	2 8 / 3 0
6 in. rubbed two sides ditto	1 2
3 in. sawn two sides slabs (random sizes)	0 5
2 in. self-faced random flags	

SLATES.

Per 1000 of 1200 at Railway Depôt.

In. In.	£ s. d.	In. In.	£ s. d.
20×10 best blue Bangor	13 2 6	22×10 best blue Portmadoc	13 12 6 / 6 12 6
20×12 ditto	13 17 6	16×8 ditto	
20×10 1st quality ditto	13 0 0	20×10 best Fur'ka unfading green	15 17 6
20×12 ditto	13 15 0	20×12 ditto	18 7 6
16×8 ditto	7 5 0	18×10 ditto	13 5 0

SLATES, &c. (*continued*).

Per 1000 of 1200 at Railway Depôt.

	£ s. d.		£ s. d.
In. In.		In. In.	
16×8 ditto	10 5 0	18×10 ditto	9 12 6
20×10 permanent green	11 12 6	16×8 ditto.....	6 12 6

TILES.

At Railway Depôt.

	s. d.		s. d.
Best plain red roofing (per 1000)	42 0	Best "Rosemary" brand plain (per 1000)	48 0
Hip and Valley per doz.).....	3 7	Best Ornamental (per 1000).....	50 0
Best Broseley (per 1000)	50 0	Hip (per doz.)...	4 0
Do. Ornamental (per 1000)	52 6	Valley (per doz.)	3 8
Hip and Valley (per doz.).....	4 0	Best "Hartshill" brand, plain sandfaced (per 1000)...	50 0
Best Buabon red, brown, or brindled (Edw'ds) (per 1000)	57 6	Do. pressed (per 1000)	47 6
Do. Ornamental (per 1000)	60 0	Do. Ornamental (per 1000)	50 0
Hip (per doz.)...	4 0	Hip (per doz.)...	4 0
Valley (per doz.)	3 0	Valley (per doz.)	3 6
Best Red or Mottled Staffordshire do. (Peakes) (per 1000)	51 9	Staffords. (Hanley) Reds or Brindled (per 1000)	42 6
Do. Ornamental do. (per 1000).....	54 6	Hand-made sandfaced (per 1000)	45 0
Hip (per doz.)...	4 1	Hip (per doz.)...	4 0
Valley (per doz.	3 8	Valley (per doz.)	3 6

WOOD.

Building Wood.	At per standard. £ s. d.		£ s. d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in.....	14 0 0	...	15 10 0
Deals: best 3 by 9	13 10 0	...	14 10 0
Battens: best 2½ in. by 7 in. and 8 in., and 3 in. by 7 in. and 8 in.	11 10 0	...	12 10 0
Battens: best 3½ by 6 and 3 by 6...	0 10 0		less than 7 in. and 8 in.
Deals: seconds.....	1 0 0		less than best.
Battens: seconds.....	0 10 0	"	"
2 in. by 4 in. and 2 in. by 6 in....	9 10 0	...	10 10 0
2 in. by 4½ in. and 2 in. by 5 in...	9 0 0	...	10 0 0
Foreign Sawn Boards— 1 in. and 1¼ in. by 7 in.	0 10 0		more than battens.
¾ in.	1 0 0		"
	At per load of 50 ft.		
Fir timber: best middling Danzig or Memel (average specification)	£ s. d. 5 0 0	...	£ s. d. 5 10 0
Seconds	4 10 0	...	5 0 0
Small timber (8 in. to 10 in.) ...	3 17 6	...	4 0 0
Small timber (6 in. to 8 in.).....	3 5 0	...	3 10 0
Swedish balks	2 12 6	...	3 0 0
Pitch-pine timber (30 ft. average)	4 10 0	...	5 5 0
Joiners' Wood.	At per standard.		
White Sea: first yellow deals, 3 in. by 11 in.....	24 10 0	...	25 10 0
3 in. by 9 in.	22 10 0	...	23 10 0
Battens, 2½ in. and 3 in. by 7 in.	17 0 0	...	18 0 0
Second yellow deals, 3in. by 11 in.	19 0 0	...	20 0 0
" " 3 in. by 9 in.	18 0 0	...	19 10 0
Battens, 2½ in. and 3 in. by 7 in.	14 0 0	...	15 0 0
Third yellow deals, 3 in. by 11 in. and 9 in.	14 0 0	...	15 0 0
Battens, 2½ in. and 3 in by 7 in.	1 10 0	...	12 10 0
Petersburg: first yellow deals, 3 in. by 11 in.....	21 10 0	...	22 10 0
Do. 3 in. by 9 in.	18 10 0	...	19 10 0
Battens	14 0 0	...	15 0 0
Second yellow deals, 3 in. by 11 in.	16 10 0	...	17 10 0
Do. 3 in. by 9 in.	15 0 0	...	16 0 0
Battens	11 10 0	...	12 10 0
Third yellow deals, 3 in. by 11 in.	13 10 0	...	14 10 0
Do. 3 in. by 9 in....	13 0 0	...	14 0 0
Battens	10 10 0	...	11 0 0
White Sea and Petersburg— First white deals, 3 in. by 11 in.	15 0 0	...	16 0 0
" " 3 in. by 9 in.	14 0 0	...	14 10 0
Battens.....	11 10 0	...	12 10 0
Second white deals, 3 in. by 11 in.	14 0 0	...	15 0 0
" " 3 in. by 9 in.	13 0 0	...	14 0 0
Battens	10 10 0	...	11 0 0
Pitch-pine: deals.....	19 0 0	...	21 0 0
Under 2 in. thick extra	0 10 0	...	1 0 0
Yellow pine—First, regular sizes	44 0 0		upwards.
Oddments	32 0 0		"
Seconds, regular sizes	33 0 0		"
Oddments	28 0 0		"
Kauri Pine—Planks, per ft. cube..	0 3 6	...	0 5 0
Dantzig and Stettin Oak Logs— Large, per ft. cube	0 3 0	...	0 3 9
Small " "	0 2 6	...	0 2 6
Wainscot Oak Logs, per ft. cube..	0 5 6	...	0 6 0
Dry Wainscot Oak, per ft. sup. as inch	0 0 8½	...	0 0 9½
¾ in. do. do	0 0 7	...	—
Dry Mahogany—Honduras, Tabasco, per ft. super. as inch...	0 0 10	...	0 1 1
Selected, Figury, per ft. super as inch	0 1 6	...	0 2 6
Dry Walnut, American, per ft. super. as inch	0 0 10	...	0 1 0
Teak, per load	18 0 0	...	22 0 0
American Whitewood Planks, per ft. cube.....	0 4 0	...	0 5 0
Prepared Flooring, etc.—	Per square.		
1 in. by 7 in. yellow, planed and shot	0 13 6	...	0 17 0
1 in. by 7 in. yellow, planed and matched	0 14 0	...	0 18 0
1¼ in. by 7 in. yellow, planed and matched	0 16 0	...	1 0 0
1 in. by 7 in. white, planed and shot	0 12 0	...	0 14 6
1 in. by 7 in. white, planed and matched	0 11 6	...	0 15 0
1¼ in. by 7 in. white, planed and matched	0 15 0	...	0 13 6
¾ in. by 7 in. yellow, matched and beaded or V-jointed brds.	0 11 0	...	0 13 6
1 in. by 7 in. " "	0 14 0	...	0 18 0
¾ in. by 7 in. white "	0 10 0	...	0 11 6
1 in. by 7 in. " "	0 12 9	...	0 15 0

6 in. at 6d. to 9d. per square less than 7 in.

JOISTS, GIRDERS, &c.

	In London, or delivered Railway Vans, per ton. £ s. d.		£ s. d.
Rolled Steel Joists, ordinary sections	7 0 0	...	7 10 0
Compound Girders, ordinary sections	9 0 0	...	10 0 0
Steel Compound Stanchions	11 0 0	...	12 0 0
Angles, Tees, and Channels, ordinary sections	9 0 0	...	10 0 0
Flitch Plates	9 0 0	...	9 10 0
Cast Iron Columns and Stanchions including ordinary patterns.....	7 10 0	...	8 10 0

METALS.

	Per ton, in London. £ s. d.		£ s. d.
Iron—			
Common Bars	8 10 0	...	9 0 0
Staffordshire Crown Bars, good merchant quality	8 15 0	...	9 5 0
Staffordshire "Marked Bars" ...	10 10 0	...	—
Mild Steel Bars	8 15 0	...	9 5 0
Hoop Iron, basis price	9 5 0	...	9 10 0
" " Galvanised	17 0 0	...	—
("And upwards, according to size and gauge.)			
Sheet Iron Black—			
Ordinary sizes to 20 g.	9 15 0	...	—
" " 24 g.	10 15 0	...	—
" " 26 g.	12 5 0	...	—
Sheet Iron, Galvanised, flat, ordinary quality—			
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.....	15 0 0	...	—
Ordinary sizes to 22 g. and 24 g.	15 10 0	...	—
" " 26 g.	16 10 0	...	—
Sheet Iron, Galvanised, flat, best quality—			
Ordinary sizes to 20 g.	18 0 0	...	—
" " 22 g. and 24 g.	18 10 0	...	—
" " 26 g.	20 0 0	...	—
Galvanised Corrugated Sheets—			
Ordinary sizes, 6 ft. to 8 ft. 20 g.	14 10 0	...	—
" " 22 g. and 24 g.	14 15 0	...	—
" " 26 g.	16 5 0	...	—
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. to 20 g. and thicker	12 0 0	...	—
Best Soft Steel Sheets, 22 g. & 24 g.	13 0 0	...	—
" " " 26 g.	15 0 0	...	—
Cut Nails, 3 in. to 6 in.	10 10 0	...	11 0 0
(Under 3 in., usual trade extras.)			

LEAD, &c.

	Per ton, in London. £ s. d.		£ s. d.
Lead—Sheet, English, 4lb. and up.	16 10 0	...	—
Pipe in coils	17 0 0	...	—
Soil pipe	20 0 0	...	—
Compo pipe.....	20 0 0	...	—
Zinc—Sheet—	In casks of 10 cwt.		
Vielle Montagne	28 12 6	...	—
Silesian.....	28 5 0	...	—
Zinc, in bundles, 1s. per cwt. extra.			
Copper—			
Strong Sheet.....per lb.	0 1 0	...	—
Thin " ..... "	0 1 1	...	—
Copper nails ..... "	0 0 10	...	—
Copper wire ..... "	0 0 10	...	—
Brass—			
Strong Sheet..... "	0 0 11	...	—
Thin..... "	0 1 0	...	—
Tin—English Ingots..... "	0 1 5	...	—
Solder—Plumbers' ..... "	0 0 7	...	—
Tinmen's ..... "	0 0 9	...	—
Blowpipe ..... "	0 1 0	...	—

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.

Per Ft., Delivered.

15 oz. thirds	2¼d.	26 oz. fourths	3d.
" fourths	1¾d.	32 oz. thirds	5d.
21 oz. thirds	3d.	" fourths	4¼d.
" fourths	2¼d.	Fluted Sheet, 15 oz.	3¼d.
26 oz. thirds	4d.	" 21 oz.	4¼d.

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.

Per Ft., Delivered.

⅛ Hartley's	2¼d.	Figured, Oxford Rolled, & 'Oceanic' Glass, white	3¼d.
¼ "	2¼d.	Ditto, tinted.....	5d.
⅜ "	2¼d.		

OILS, &c.

		£ s. d.
Raw Linseed Oil in pipes.....	per gallon	0 3 3
" " in barrels	"	0 3 4
" " in drums	"	0 3 7
Boiled " in barrels	"	0 3 7
" " in drums	"	0 3 10
Turpentine in barrels	"	0 3 6
" in drums	"	0 3 8
Genuine Ground English White Lead	per ton	20 10 0
Red Lead, Dry	"	20 0 0
Best Linseed Oil Putty	per cwt.	0 7 6
Stockholm Tar	per barrel	1 12 0

VARNISHES, &c.

	Per gallon. £ s. d.
Fine Pale Oak Varnish	0 8 0
Pale Copal Oak	0 10 6
Superfine Pale Elastic Oak	0 12 6
Fine Extra Hard Church Oak.....	0 10 0
Superfine Hard-drying Oak, for seats of Churches	0 14 6
Fine Elastic Carriage	0 12 0
Superfine Pale Elastic Carriage	0 16 0
Fine Pale Maple	0 18 0
Finest Pale Durable Copal	1 1 0
Extra Pale French Oil	0 18 0
Eggshell Plating Varnish	1 4 0
White Pale Enamel	0 12 0
Extra Pale Paper	0 10 6
Best Japan Gold Size.....	0 16 0
Best Black Japan	0 9 0
Oak and Mahogany Stain.....	0 8 0
Brunswick Black	0 16 0
Berlin Black	0 10 0
Knotting	0 10 6
French and Brush Polish.....	

TENDERS.

Communications for insertion under this heading should be addressed to 'The Editor," and must reach us *not later than* 10 *a.m. on Thursday.* [N.B.—We cannot publish Tenders unless authenticated either by the architect or the building owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is stated, nor any list in which the lowest Tender is under 100*l.* unless in some exceptional cases and for special reasons.]

* Denotes *accepted.* † Denotes *provisionally accepted.*

ALNWICK.—For road-making, etc., Fisher-lane, for the Urban District Council. Mr. Geoffrey Wilson, Town Surveyor, Alnwick. Quantities by Town Surveyor:—

Wight Bros.....	£180	J. Whinham, Alnwick*	£113
W. Thompson, Jun..	127		

[Estimate, £140.]

ASPULL.—For private street improvements, for the Urban District Council. Messrs. Heaton, Ralph, & Heaton, architects and surveyors, King-street, Wigan:—

F. Hayes	£1,228 5 0
W. Ascroft	1,180 0 0
Beanie & Thompson	1,099 6 1
J. Fairhurst & Sons	1,015 0 0
S. Cowburn & Sons.....	960 13 10
Webster & Winstanley, Wallgate, Wigan*	877 0 0

BARNET.—For making-up Gladsmuir-road and Hadley-grove, for the Urban District Council. Mr. W. F. Wilkins, Surveyor, 40, High-street, Barnet:—

	A.	B.
T. Free & Sons	£265	£159
T. Adams	238	325
G. Bell & Sons	244	337
J. C. Truman, Ltd., Swanley Junction*..	204	290
R. W. Swaker.....	290	272

BILSTON.—For alterations to the assembly-room and approaches at the Town Hall, for the Urban District Council. Mr. Vincent Turner, A.M.Inst.C.E., Engineer and Surveyor, Town Hall, Bilston:—

H. T Marchant	£228 0 0	H. & F. Hallett, Wolverhampton*	£159 15 0
J. Hickin & Sons	218 15 4		
H. Gough & Son	180 0 0		
G. Cave & Son..	175 0 0		

BOURNEMOUTH.—For making-up Chatsworth-road (last portion), Orcheston-road, Frankston-road, for the Corporation. Mr. F. W. Lacey, M.Inst.C.E., Borough Engineer and Surveyor, Municipal Offices, Bournemouth:—

M. Loader, "Lucknow," Green-road, Bournemouth	£599 3 11

BOURNEMOUTH.—For the construction of pavilion at Southbourne and Alum Chine Pleasure Grounds, and other works in connexion therewith, for the Borough Council. Mr. F. W. Lacey, M.Inst.C.E., Borough Engineer and Surveyor, Municipal Offices Bournemouth:—

Jenkins & Sons, 247, Holdenhurst-road, Bournemouth	£293

BRADFORD.—Accepted for erecting Saint Clement's Vicarage, Barkerend-road. Mr. H. E. Priestley, architect and surveyor, 4, Bertram-road, Manningham, Bradford. Quantities by the architect:—

Excavator, Mason, and Bricklayers' Work: O. Booth & Son, Gt. Horton, Bradford	£784 0 0
Carpenter and Joiners' Work: W. Pickering, Garnett-street, Bradford	423 10 0
Plumber and Glaziers' Work: G. Collinson, Manningham-lane, Bradford	200 0 0
Plasterers' Work: J. & W. Bates, Manchester-road, Bradford	129 0 0
Slaters' Work: J. Smithies, Gt. Horton-road, Bradford	55 17 6
Painters' Work: H. A. Smith, Barkerend-road, Bradford	40 5 2

BRIGHTON.—For painting the grandstand at the racecourse, for the Borough Council:—

J. & W. Simmonds ..	£725	J. Olliver & Son, 1A and 2, St. Mark's-street, Brighton*	£555
A. M. Read	658		
Gates & Sons*	560		

BRITON FERRY.—For the erection of a public hall and institute, for the Briton Ferry Public Hall Committee. Mr. H. Alex Clarke, architect, Briton Ferry. Quantities by architect:—

W. E. Willis..	£7,852 14 0	D. W. Davies & Howell ..	£8,500 0 0
J. Goodridge & Sons	6,993 0 0	J. M. Broadfoot.....	6,328 0 0
L. Gower	6,962 0 0	W. Williams..	6,244 0 0
M. Cox	6,799 0 0	A. J. Colborne	6,199 0 0
Jones & Thomas....	6,779 0 0	Radford & Greaves	6,186 7 6
D. Davies & Sons	6,626 0 0	E. R. Evans & Bros., Cardiff*	6,141 0 0
Knox & Wells	6,547 0 0		
G. Thompson & Co.....	6,527 10 0		

CARDIFF.—For making-up streets (Amesbury-road, etc.), for the Corporation. Mr. W. Harpur, City Engineer, City Hall, Cardiff. Quantities by City Engineer:—

C. Davies	£9,614 15 7	W. Baker & Co.	£8,585 5 5
T. R. Williams	9,511 15 7	R. Pomeroy & Co., Cardiff*	7,867 0 0
Osmond Bros.	9,349 9 2		

CARLTON.—For erecting fence walls, wrought-iron fencing, and urinals, and works of street improvement at recreation ground, Cemetery-road, for the Urban District Council. Mr. J. C. Haller, C.E., Engineer and Surveyor to the Council. Quantities by Engineer:—

J. T. Tegerdine..	£350 11 4	T. H. Harper, Carlton*	£330 10 0
A. & C. Raynor..	348 0 9		

CEFN COED.—For sewerage works, Contract No. 2, for Vaynor and Penderyn Rural District Council. Messrs. Willcox & Raikes, engineers, 63, Temple-row, Birmingham:—

	Disposal Works.	Sewerage Works.
H. E. Buckley, Bradford*	£5,328 13..	£3,185 5

CHARD.—For the erection of house and shop, Fore-street, Chard. Messrs. Symes & Madge, architects and surveyors, Somerset House, Chard. Quantities by architects:—

A. Boole, Ilminster* £540

CIRENCESTER.—For new superintendent's house, etc., police-station:—

E. Preece	£1,350	0 0	Saunders & Sons	£1,140	0 0
A. Estcourt & Sons	1,315	0 0	A. J. Dolman	1,122	14 3
T. C. Gluyas ..	1,300	0 0	G. F. & E. Newcombe	1,107	0 0
W. Jones	1,260	0 0	A. J. Colborne	1,073	15 0
E. Love	1,229	0 0	H. Fleetwood, South Cerney	1,058	10 4
Orchard & Peer	1,215	0 0			
W. F. Drew ..	1,203	10 0			
Collins & Godfrey	1,149	0 0			

DEWSBURY MOOR.—For extension of shed, new stone house, etc., at West Field Mills, Dewsbury Moor. Messrs. Holtom & Fox, architects, Corporation-street, Dewsbury:—

Masons:	J. Firth	£289 0 0
	Humphreys & Green.....	282 14 0
	S. Drake	266 13 0
	C. W. Whitehead, Ravensthorpe*	257 12 0
Joiner: J. Richardson, Staincliffe*		77 18 0
Slater: W. H. Thompson, Dewsbury.....		38 10 0
Plumber: F. Newsome, Dewsbury*		14 17 0
Ironfounder: F. Firth, Dewsbury		11 10 0
Plasterers: W. Parker & Sons, Heckmondwike*		4 3 8

EASTWOOD (Notts.).—For forming, kerbing, paving, channelling, sewering, etc., of Ratcliffe-street. Mr. A. G. Wheeler, architect and surveyor, Eastwood, Notts:—

H. H. Barry ..	£313	3 0	Rowland Bros.	£272	16 10
F. G. Stubbs ..	293	7 6	J. Thraves, Stapleford* ..	256	6 10
A. & C. Raynor	292	5 8			

[Surveyor's estimate, £252.]

FRASERBURGH (Scotland).—For erecting villa on Strichen-road, for Mr. J. Macdonald. Mr. W. S. Wilson, architect, 6, Broad-street, Fraserburgh:—

Mason: J. G. Corbett, King Edward-street, Fraserburgh*	£464 0 0
Carpenters: T. Brebner & Son, College Bounds, Fraserburgh*‡	380 0 0
Plumbers: W. M. Stewart & Co., Castle-street, Fraserburgh*	133 0 0
Plasterer: A. Campbell, High-street, Fraserburgh*	81 19 8
Slater: J. Reid, Frithside-street, Fraserburgh*	61 10 6
Painter: A. Webster, Broad-street, Fraserburgh*§	23 18 0

‡ Exclusive of glazing. § Painting only, glazing by carpenter.

GRIMSBY.—Erection of shelter and conveniences and corrugated iron fencing at playing field. Mr. H. Gilbert Whyatt, A.M.Inst.C.E., Borough Engineer and Surveyor, Municipal-buildings, 170, Victoria-street, Grimsby:—

Wilkinson Bros.	£282	11 5	Edwards & Raynor	£106	13 2½
J. A. Thomas ..	339	9 6	C. A. Marshall	304	10 6
R. G. Kitching	334	9 3	Swaby & Walsham	297	6 3
W. Gilbert	322	1 3	J. Winter	289	10 0
T. R. Waterman	313	0 0	H. Marrows, Garden-street*	283	0 0
Hewins & Goodhand.... ..	310	0 0			

[All of Grimsby.]

GRIMSBY.—For erection of dayroom in connexion with House of Detention for Juveniles. Mr. H. Gilbert Whyatt, A.M.Inst.C.E. Borough Engineer and Surveyor, Municipal-Buildings, 170, Victoria-street, Grimsby:—

Rands & Lindup	£133	0 0	J. Winter	£119	0 0
Wilkinson Bros.	131	7 6	Hewins & Goodhand	114	0 0
Emerson Bros..	129	14 3	H. Thompson ..	112	10 0
T. R. Waterman	128	0 0	H. Marrows	112	0 0
J. A. Thomas ..	124	10 0	W. Gilbert	110	8 6
R. G. Kitching..	124	4 0	Swaby & Walsham, Harestreet*	106	14 3
C. A. Marshall..	123	10 6			
Edwards & Raynor	120	3 9			

[All of Grimsby.]

GUILDFORD.—For erecting new premises, Haydon-place, Guildford, for the Guildford and District Co-operative Society, Ltd. Mr. T. J. Capp, architect, 1, Stoke-road, Guildford:—

W. Smith & Sons ..	£2,700	F. Billimore	£2,632
A. Johnson	2,653	Tribe & Robinson..	2,610
R. Smith	2,650	Higlett & Hammond*	2,549
S. Ellis	2,637	H. Brand‡	2,172

‡ Withdrawn.

[All of Guildford.]

HARROW-ON-THE-HILL.—For making-up private streets (Devonshire-road, Dorset-road, Oxford-road, etc.), for the Urban District Council. Mr. J. Percy Bennetts, Engineer and Surveyor, Harrow:—

T. Watson	£4,351	T. Adams	£3,060
A. B. Champniss ..	3,190	J. C. Trueman	3,055
Wimpey & Co.	3,173	A. Wooster	3,006
Free & Sons	3,086	P. Fitzgerald*	2,935

LITTLEMILL (near Pontypool).—For erecting two houses, for Mr. T. W. Holder. Mr. D. C. Udell, architect and surveyor, Commercial-street, Pontypool:—

D. Bowen, Mamhilad* £380

LLANBADOC.—For pulling down and rebuilding the "Britannia Inn," for Mr. J. Williams. Messrs. Swalwell & Havard, architects and surveyors, 202, Dock-street, Newport, Mon.:—

E. Dean	£1,345	0	F. W. Powles ..	£1,077	0
L. R. Lucas	1,291	10	J. Charles.....	1,045	0
R. W. Moon....	1,197	0	G. Prosser	998	10
Ley & Sons	1,170	0	E. F. King & Co.	998	0
D. Bowen.....	1,153	10	G. F. Leadbeter	945	0
T. Kirby	1,124	0	C. H. Reed, 1, Malpas-road, Newport, Mon.*	944	0
H. Leadbeter ..	1,095	0			
J. Jenkins, Ltd..	1,080	0			

LONDON. — For wood-paving the carriageways, Brockley-road, for Deptford Borough Council. Mr. J. Sutcliffe, A.M.Inst.C.E., Borough Surveyor, Town Hall, New Cross-road, S.E.:—

Improved Wood Pavement Co., Ltd., 46, Queen Victoria-street, E.C. £2,384 12 10

PENARTH.—For constructing two ferro-concrete (Hennebique system) footbridges in the Dingle, for the Urban District Council. Mr. E. I. Evans, A.M.Inst.C.E., Surveyor, District Council Offices, Penarth:—

Hobrough & Co.....	£474 14 8
E. H. Page	463 9 0
W. Thomas & Co.	440 11 0
Yorkshire Hennebique Contracting Co., Ltd.	439 5 0
G. Palmer	397 8 11
Lambrick & Co.....	390 10 0
A. S. Morgan & Co., Ltd.....	365 17 0
G. Chapman, Pontypridd*	306 6 5

PENYGARN (Wales).—For taking down cottages and erecting two houses, for Mr. D. Rees. Mr. D. C. Udell, architect, Commercial-street, Pontypool:—

Jarvis & Saunders	£420 10	Gregory Bros., Pentrewynydd*.	£390 0
E. Sainsbury	420 0		
W. H. Campbell..	402 10		

REDDITCH.—For laying about 585 yds. of 9-in. stoneware sewer in or near Feckenham-road, for the Urban District Council. Mr. A. J. Dickinson, Engineer and Surveyor, Council Offices, Evesham-street, Redditch:—

T. Vale & Sons, Ltd.	£283 12 6	W. Thorpe	£244 15 9
J. Shrimpton ..	257 0 0	G. P. Trentham, Birmingham*.	240 0 0

RICHMOND (Surrey).—For alterations, additions, and decorations to No. 4, Maids of Honour-row, for Mr. Chas. Garvice. Mr. H. Oliver, architect, 4, Whitehall-court, S.W.:—

Bull & Esdaile	£561	Speechley & Smith ..	£455
Eldridge & Co.	483		

ST. BEES (Cumberland).—For waterworks, for Whitehaven Rural District Council. Mr. G. Boyd, C.E., 33, Queen-street, Whitehaven:—

Contract No. 1.

J. Whittle & Son, Whitehaven* £611

Contract No. 2.

H. J. Doloughan, Bigrigg, Cumberland* .. 207

SWANNINGTON.—For main drainage works, for Ashby-de-la-Zouch Rural District Council. Mr. T. I. McCarthy, Engineer, Central-chambers, Coalville, near Leicester. Quantities by Engineer:—

W. Smart ..	£5,475	8 6	G. Bell & Sons	£3,781	0 0
H. H. Barry..	5,030	8 0	Johnson & Langley....	3,724	10 0
R. C. Brebner	4,646	0 0	Moss & Son ..	3,653	0 0
F. Mitchell & Son	4,492	5 6	J. Chapman ..	3,618	10 0
Wickstead & Co.....	4,324	8 1	H. Berry	3,568	18 2
J. Mackay ..	4,296	16 6	W. G. Wilmott	3,546	17 3
Griffin Bros..	4,227	1 1	Firth & Co. ..	3,508	1 9
A. Jewell....	4,133	0 0	Stimpson & Rollston, Leicester* ..	3,327	7 4
Ward & Tetley	4,023	11 9	W. W. Webster	3,170	10 0
A. I. Cottle..	3,995	3 7	F. Atkinson & Co.....	3,134	5 1
E. Orton	3,924	0 0			
W. W. Bateman	3,906	9 4			

[Engineer's estimate, £3,825.]

TUNBRIDGE WELLS.—For addition to "Forest Home," Withyham, for Mr. H. J. Mansell. Mr. Walter Kirk, architect, Withyham:—

Connor Bros., Crowborough* £160

TUNBRIDGE WELLS.—For entrance lodge at Groombridge, for Mr. F. A. Bell. Mr. Walter Kirk, architect, Withyham:—

Strange & Sons ..	£543	0	F. H. Bingham, Groombridge*..	£449	14
J. Waters & Son..	530	0			

TUNBRIDGE WELLS.—For additions to "The Cottage," Lye Green, for Earl De La Warr. Mr. Walter Kirk, architect, Withyham, Tunbridge Wells:—

F. H. Bingham..	£611	4 3	Connor Bros., Crowborough*	£565	12 6

TWICKENHAM.—For 620 yds. of artificial stone paving, for the Urban District Council. Mr. F. W. Pearce, Surveyor to the Council, Town Hall, Twickenham:—

Per yd. super.
s. d.

Empire Stone Co., Ltd., 231, Strand, W.C.* 3 8

WAMBROOK. — For alterations and additions to Wambrook Schools, near Chard, for the School Managers. Messrs. Symes & Madge, architects and surveyors, Somerset House, Chard. Quantities by architects:—

J. E. Fursland..	£547	0 0	R. Harris.....	£414	0 0
R. G. Spiller ..	449	10 0	C. Bryer, jun..	410	0 0
J. Layzell	445	10 0	Reileen & Griffiths	398	0 0
Parsons Bros. & Dunster	429	0 0	F. J. Collins, Wambrook*..	389	13 4
J. Strawbridge..	425	0 0			

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